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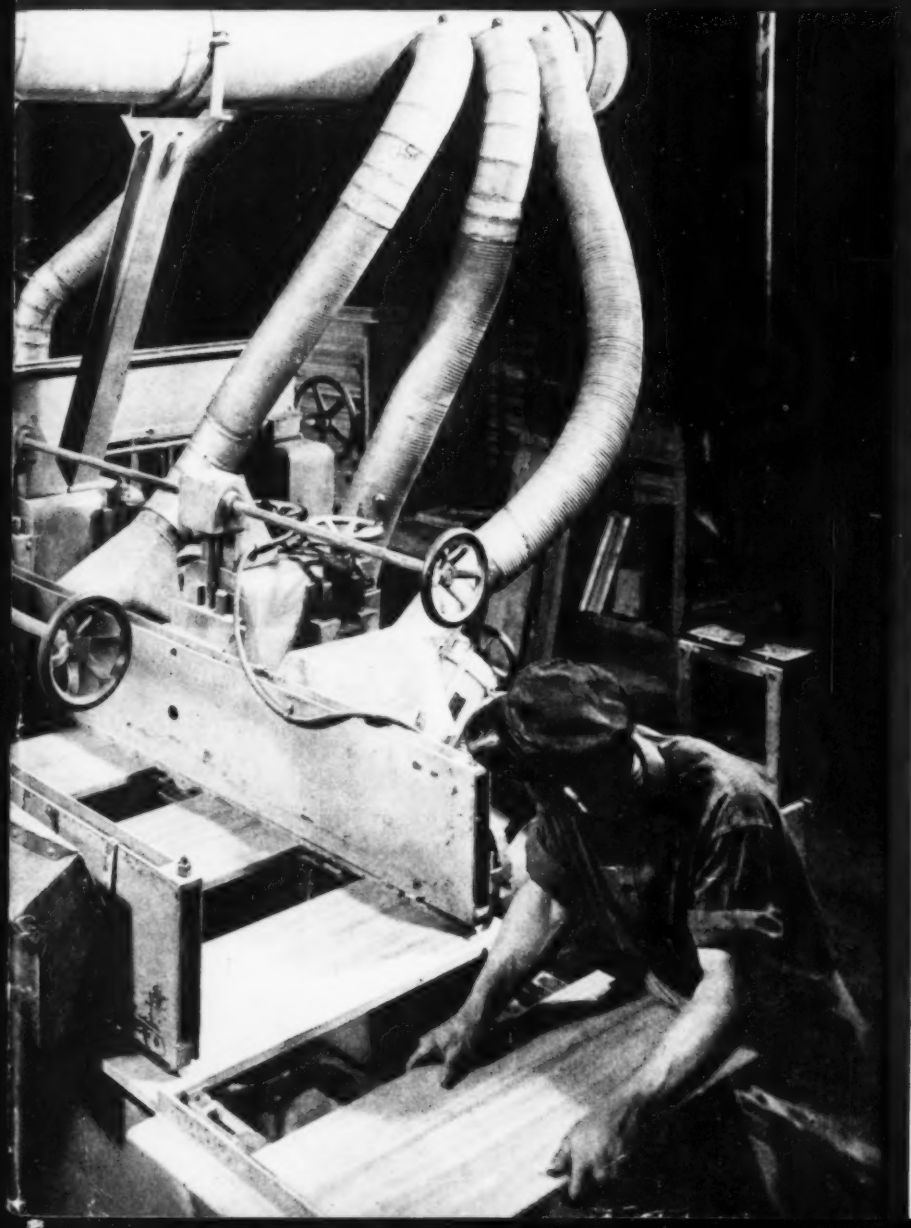
November, 1951



A.F.P.I.'s Gillett

See page 29 – WOOD SALUTES

Mengel Highlights

Double end tenoner in operation at Mengel. A frank report on how to increase production is presented on Page 34

New, Small Log Barkers

Bill Hogan reports on two new units. Page 33

Training Sharp Experts

Saw and knife maintenance men have to be trained properly. How to do it on Page 44.

See These Features

- Radio Speeds Logging
- Choosing Adhesives
- Lignin Use
- Packaged Lumber
- R. F. Heating Pointers
- Ladders in the Making
- Trends
- Patent Digest

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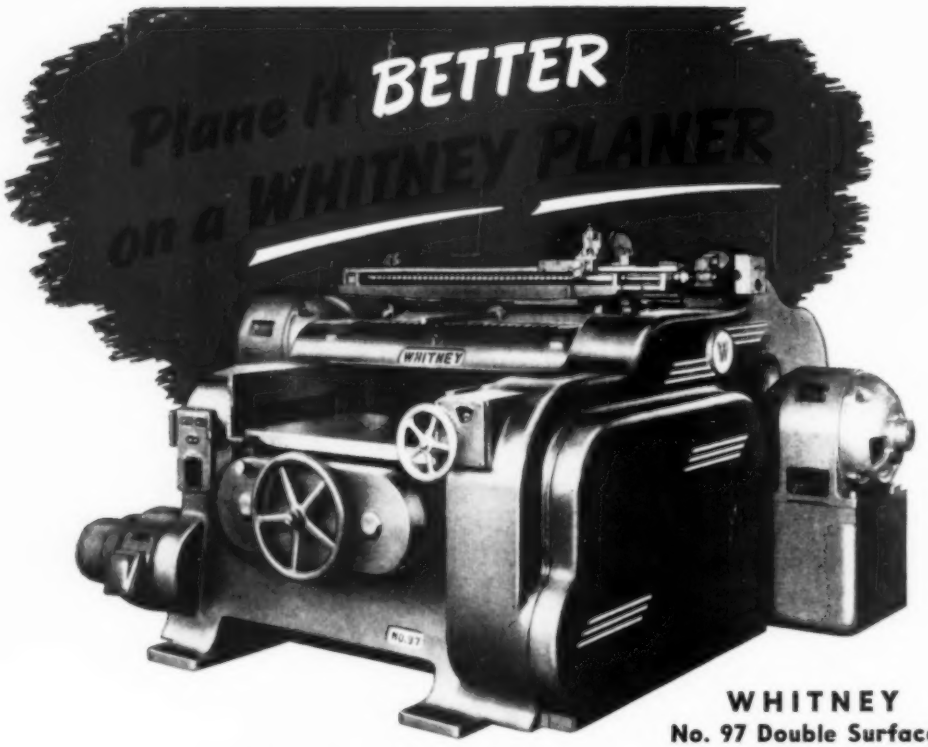
The National Management and News Magazine of the Forest Products Industry.



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JOE REAVES, Supt., Bradley Lumber Co., Warren, Arkansas, says:

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Mr. Reaves was one of over 75 lumbermen, shown on pages 34 and 35, who took part in the Run. His Ford F-8 Big Job with pole trailer traveled 18,047 miles at a cost of only $1,015.05 for gas, oil, maintenance and repairs. Check *your* truck running costs with those of other lumbermen whose loads and working conditions are similar to yours!

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Volume 56 No. 11

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It was one of those quick-change scenes with the stage all dark. When she asked for her tights the electrician thought she said lights.

• • •

There's the man who's having such interesting dreams he's taken to wearing his spectacles to bed.

• • •

The gals say it ain't a question of trusting a fella too far these days—as trusting him too close.

• • •

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Least waste, most haste, best prices —a package deal, every time from the MAUK Lumber Company.

• • •

Simple Celia says she's taking up acrobatic dancing and is going to learn to kick her head or bust. Not both at the same time, I hope.

• • •

The way we're getting all worked up about saving democracy and stopping the Russians has a familiar ring. Could it be a matter of hysteria repeating itself?

• • •

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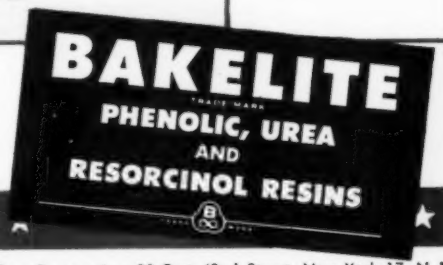
Specification	Date	Recommended BAKELITE Resin	Title
MILITARY			
MIL-A-397A	4/6/51	Type I, Class 1, Cond. A—None Type I, Class 1 or 2, Cond. B—None Type I, Class 1 or 2, Cond. C—BC-17613 Type II, Class 1 or 2, Cond. A—None Type II, Class 1 or 2, Cond. B—None Type II, Class 1 or 2, Cond. C—BC-17613	Adhesive, room-temperature, and intermediate-temperature-setting-resin.
MIL-P-66A	12/27/49	Type I—BCU-40, BCU-22, BCU-28, BCU-50, QCU-57, QCU-87 Type II—BCU-40, BCU-28, BCU-22, BCU-50, QCU-57, QCU-87 Type III—BCU-40, BCU-28, BCU-22, BCU-50, QCU-57, QCU-87 Marine—BC-17875 Hutment—BCU-40, BCU-28, BCU-22, BCU-50, QCU-57, QCU-87	Plywood, flat-panel
MIL-A-5433A	3/13/51	Method I—See MIL-A-397A Type I Method II—See MIL-A-397A Type II, Class 1—BC-17613	Adhesive; application of room-temperature and intermediate-temperature-setting-resin.
MIL-A-5534	1/9/50	Condition A—None Condition B—BC-17875	Adhesive; high-temperature-setting-resin.
MIL-A-5535A	3/12/51	See MIL-A-5534 Condition A—None Condition B—BC-17875	Adhesive; application of high-temperature-setting-resin.
MIL-F-10090	1/11/48	Plywood and furniture panels: BCU-1, BCU-28, BCU-22 Assembly glue: BC-17613	Furniture; wood, tables, for officers and non-commissioned officers.
MIL-F-10091	12/17/47	Plywood and furniture panels: BCU-40, BCU-28, BCU-22 Assembly glue: BC-17613	Furniture; wood, chairs, for officers and non-commissioned officers' quarters.
MIL-G-6803	6/22/50	QCU-87, BCU-28, BCU-40	Glue; application of cold-setting resin.
MIL-P-6069	3/29/50	BC-17875	Plywood; aircraft, molded.
MIL-P-6070	3/29/50	BC-17875	Plywood and veneer; aircraft flat panel.
MIL-F-2319	12/3/48	BC-17613 (Room, Intermediate); BC-17875 (High temp.); BCU-28, BCU-40 (Urea)	Furniture; wood, case goods for officers' and non-commissioned officers' quarters.
MIL-F-10089	1/13/50	Plywood—BC-17875 Assembly—BC-17613	Furniture; composite metal and wood.
JOINT ARMY-NAVY			
JAN-P-105A	12/20/45	See JAN-P-139	Packaging and packing for overseas shipment, boxes, wood-cleated plywood.
JAN-P-112	10/31/44	BCU-40, BCU-22, BCU-28	Packaging and packing for overseas shipment, drums, plywood.
JAN-P-139	8/22/46	Type A—BC-17875 Type B—BCU-40, BCU-28, BCU-22	Packaging and packing for overseas shipment, plywood, container grade.
JAN-F-241	4/25/46	QCU-87, BCU-28, BCU-40	Floats, life, balsa wood.
ARMY QUARTERMASTER			
CQD-101B	10/27/43	BCU-28, BCU-40, BCU-22	Chests, desks, fiber.
BQD-134A	6/14/45	Type I—BCU-40 Type II—BCU-28	Sled, toboggan.
CQD-203-A	5/24/45	Type I—BCU-40 Type II—QCU-87, BCU-28, BCU-40 Type III—BCU-28	Sled, cargo.

BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation,* 30 East 42nd Street, New York 17, N. Y.

Specification	Date	Recommended BAKELITE Resin	Title
ARMY ORDNANCE			
AXS-1665	10/17/45	BC-17613	Resorcinol resin.
AXS-1666	10/17/45	BC-17613	Glue.
U. S. ARMY			
23-79-D-2	8/2/49	BC-17815	Locker, trunk.
23-115A	2/7/49	BC-17613 (cold, intermed.) BC-17875 (high temperature)	Skis.
91-99	7/6/45	Type I—BCU-40 Type II—QCU-87 Type III—BCU-28	Gluing of wood vehicle parts, general requirements for.
91-111	7/2/47	Same as 91-99	Bodies, cargo, wood, general requirements for.
91-115	9/12/45	Type I—BCU-40	Wood parts, fabricated, for transport vehicle bodies.
NAVY DEPARTMENT			
39-F-3	4/15/47	BC-17613	Fir, Douglas, laminated (for ship use).
39-P-15	12/15/43	QCU-87, BCU-28, BCU-40	Plywood (Naval use).
39-W-2A	12/15/45	BR-15100	Wood, impregnated, compressed.
52-G-11	2/1/45	QCU-87, BCU-28, BCU-40	Glues, resin (urea formaldehyde).
NAVY AERONAUTICAL			
PG-2	1/16/45	Type I, Class 1 or 2, Cond. A—None Type I, Class 1 or 2, Cond. B—None Type I, Class 1 or 2, Cond. C—BC-17613 Type II, Class 1 or 2, Cond. A—None Type II, Class 1 or 2, Cond. B—None Type II, Class 1 or 2, Cond. C—BC-17613	Glue, process for use of phenol-aldehyde resin.
G-35	4/25/45	Type I—Primary—None —Secondary—BC-17613 Type II—Primary—None —Secondary—BC-17875	Glue, metal-to-wood, sandwich construction.
G-38	6/25/45	Type I—BC-17613	Glue, synthetic resin (plastic to plastic).
U. S. AIR FORCE			
AF-14139	6/22/45	Condition A—None Condition B—BC-17875 Condition C—None	Glue, high-temperature-setting-resin.
AF-14150	9/4/45	Condition A—None Condition B—BC-17875 Condition C—None	Glue, application of high-temperature-setting-resin.
AF-15015-A	1/14/49	See MIL-P-66A	Plywood, plastic-faced.
AF-15027	9/28/49	See MIL-A-397A	Plywood, vulcanized fiber-faced.
AF-15065-B-1	1/21/47	BR-15100	Impregnated wood.
AF-20041-2	4/6/45	QCU-87, BCU-28, BCU-40	Panels, comp. wood, impreg.
AF-29538-A	2/4/46	BR-15100	Blank, propeller, compressed wood.
FEDERAL			
AA-C-281(1)	2/17/47	See CG-496 (2)	Chairs, bent wood.
NN-B-476	12/30/44	QCU-87, BCU-28, BCU-40	Blocks, and tables, meat.
CG-496(2)	9/14/44	QCU-87, BCU-28, BCU-40	Glue, resin-type (liquid and powder).
NN-B-601-B	10/8/47	Type A—BCU-40, QCU-57 Type B—BCU-40, QCU-57, BCU-22 Type C—BCU-40, QCU-57, BCU-28, BCU-22	Boxes, wood-cleated plywood.

Yours for the asking! A 24" x 17" enlargement of this Table of Military Specifications.
Write Dept. CR-26.



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Industry Trends

This Month's Challenge

Old lumber towns need not die . . . given a chance, they'll stay. At least, such is the case of Nahma, Michigan. The Bay de Nocquet Lumber Co.—the town's only industry—closed its doors after 70 years of operation after the lumber gave out, leaving most of the people unemployed. But it was only a matter of weeks before the entire town was sold to the American Playground Device Co. of Anderson, Ind., with the understanding that the new owner would hire the 952 townspeople. It was a deal, and so, for Nahma, it was from lumbering to park, picnic, swimming pool and playground equipment.

Charles E. Good, president of the lumber company, in making the sale contingent upon the re-employment of the dislodged personnel, also saved his stockholders the loss of idle property and equipment and was instrumental in adding to the overall industrial expansion of the nation.

LUMBER

Production, Prices

In spite of a decreased demand, production of lumber during the second quarter of 1951 continued at the high levels attained in the first quarter, according to the quarterly report of the Lumber Survey Committee to the Secretary of Commerce. An estimated 10,922 million board feet was produced, one of the highest second quarters on record. The continuing favorable weather and the possibility that demand will pick up in the fall have kept mill operators producing at a record pace.

There is evidence of a softening lumber market in the decrease in shipments and new orders, coupled with a build-up of lumber stocks at the mill, and a gradual decline in average wholesale lumber prices. Direct and indirect military requirements have not yet taken up the slack in demand created by the credit restrictions on housing.

Lumbermen are still confused by the uncertainty of the present price regulations. It is believed that the

(Continued on page 11)

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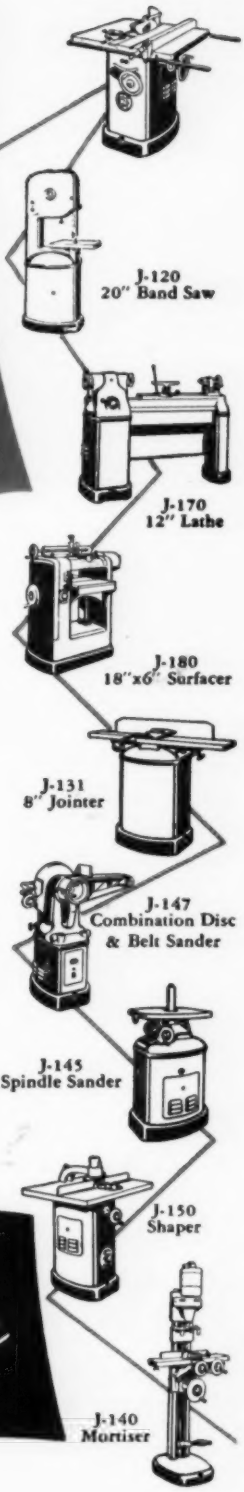

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PLASKON®
RESIN GLUE

(Continued from page 8)

specific "dollars and cents" price ceilings for the various species of lumber which are being developed by the Office of Price Stabilization will help to clarify the situation.

Lumber Production, 1950

Lumber production in the United States is estimated at 37,951,739,000 board feet, lumber tally, a record high since the 1920's, according to data compiled from the 1950 Annual Survey of Manufacturers conducted by the U. S. Bureau of Census. This indicates an increase of 18 percent over the 1949 estimated production of 32.2 billion board feet. Softwood production accounted for 30,576,682,000 bd. ft. while hardwood production was 7,375,057,000 bd. ft. Of the total production the Western States accounted for 18,812,614,000 bd. ft.; the South, 13,896,818,000 bd. ft. and the rest of the United States, 6,564,482,000 bd. ft.

PRODUCTION

Wood Containers

With container production and demand more nearly in balance than at any time since the Korean conflict and with the advent of CMP, the outlook for the near future is for a more adequate supply of practically all types of containers, according to the National Production Authority, United States Department of Commerce.

Improved deliveries to customers, and stronger inventory positions at the manufacturers level is expected. This situation, however, is expected to be only temporary since container users who have been temporarily out of the market because of heavy finished goods inventories, will, when these are cleared, again be in the container market to add to the existing normal heavy seasonal demand. See page 91 for a more detailed industry report.

Radio & Television

For the first six months of 1951 radio production was 4.4 million sets against 8 million in the first six months of 1950. On TV sets 1.8 million against 3.3 million in the first six months period of 1950.

(Continued on page 12)

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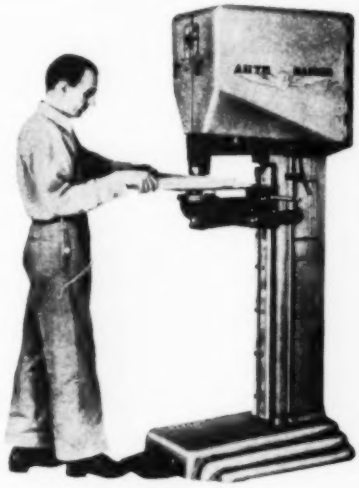

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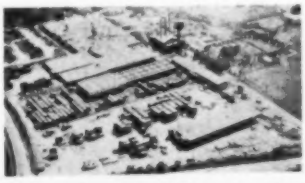

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TRENDS

(Continued from page 11)

Freight Cars

Spot shortages in railroad freight cars throughout the country will not get any worse according to the experts. Reasons: 1. We now have 41,000 more freight cars in service than at this time last year. 2. The improved methods of handling car shipments by the railroad industry is making more cars available.

Sawmill Trends

In the South and Midwest, many changes are being made in sawmill layout, machinery and operating methods. The main trend is toward small in-line, mechanized plants which require a minimum of upkeep and manpower and maximum of production per man hour. The trend is definitely away from the larger and more expensive layouts.

On the West coast, due to the widespread area from which logs must be taken, the trend is toward small mills for sawing with a minimum of manufacturing being done at that point. The product of the smaller mill is shipped to larger plants for resawing, trimming and further processing.

In all sections, operators are looking for more efficient layouts, improved techniques of manufacture, avoidance of high waste, due to inefficient saws and inadequate equipment. More attention is being paid to getting the highest quality lumber from each log due to the increasing number of low quality logs. Engineering and research are today working a revolution in the method of lumber manufacture throughout the country.

MACHINERY TRENDS

Hydraulics

Probably the most outstanding development in sawmill operation is the application of hydraulics to sawmill machinery. This powerful and flexible means of power transmission is being used with almost spectacular results as a means of variable feed for sawmill carriage drives, trimmers, edgers, gangsaws and log hauls. As an example on sawmill carriage drives it has resulted in: 1. Increased production ranging from 20 to 50%.

(Continued on page 14)

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"In extremely wet weather and in extremely dry weather, Nelsonized-treated drawers do not show any material change."
— *B FURNITURE CO.*

"Our customers must have a finish or preservative, and we are happy to recommend anything that we believe is good. A month of hanging Nelsonized-treated green cedar in open air with plenty of hot sun and also over a heater subjected to about 100 F. for eight hours a day did not produce any checks. This result is unusual, from our experience."
— *C CEDAR PRODUCTS CO.**

*Photostats of testimonials on request

NELSONIZING protects wood against humidity, old age, dirt. There is a Nelsonite formula specially compounded to attain the specific results desired on any wood or for any end use of wood.

Nelsonite Chemical Products, Inc.
Grand Rapids 4, Mich.

TRADE MARK

Nelsonized

AGAINST WARPING, SWELLING & STICKING

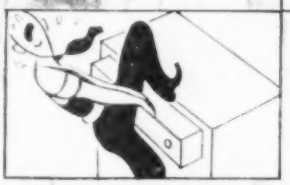
THIS SEAL MEANS THE WOOD IN YOUR PRODUCT IS DIMENSIONALLY STABILIZED!

STOP WARPING

Nelsonized Wood, left, resisted warping when exposed to high humidity with untreated wood.

STOP STICKING

Nelsonizing's high anti-shrink efficiency means cabinet doors shut easily and stay shut!



STOP SWELLING

Nelsonizing retards moisture pick-up. No more swollen drawers that can't be opened!

MAIL COUPON TODAY FOR SAMPLE

Nelsonite Chemical Products Inc.
226 Scribner Avenue, N.W., Grand Rapids 4, Michigan

Gentlemen:

We are interested in Nelsonizing the following wood and wood product

_____

_____

Please send us sample to meet our individual specifications, at no charge.

Company _____

Address _____

City _____ Zone _____ State _____

See how
MOISTURE
REGISTER
saves you
...money!

MOISTURE REGISTER instruments

- Cut down costly finished product rejects.
- Make sure your lumber meets moisture specifications for grade.
- Reduce customers complaints and insure consistent production quality.
- Save man hours because Moisture Register tests in seconds. Oven tests take hours.
- Save freight costs. You don't pay for excess moisture.
- Save on overhead. Wet lumber increases tool maintenance.

Moisture Register Model K2D in use at Mansion House Furniture Company, Los Angeles.

Moisture Register instruments are simple to use. They show you when wood is exactly right for most efficient cutting, banding, fitting and finishing.

Models priced from $60 to $148.50 both radio frequency and needle type. Test 80 wood varieties, wood products, wood waste and plaster, down to 0% in three seconds or less. Rugged, portable. One year guarantee. Write for complete information on Moisture Register instruments specially designed for the textile, leather, paper, wood and wood products industries.

10-day free trial on any model. Write today, outlining your requirements. No obligation.

ELECTRONIC MOISTURE REGISTER

Mfg. by Moisture Register Co.
1510 W. Chestnut St., Alhambra, Calif.

TRENDS

(Continued from page 12)

2. Elimination of maintenance and breakdown time. 3. The fine speed control allows the sawyer to select the correct speed for each cut. 4. Lessons the work of the sawyer in moving the control lever. 5. Increases carriage speeds. 6. Improves quality of lumber because of the smooth control obtained.

HOUSING

Home Financing

Buyers of low priced homes are having trouble financing, in spite of GI and FHA. With the falling off of home starts in the past few months, Washington is thinking in terms of loosening up on home loan rules and money. This could have a decided effect on home starts in 1952.

TERMINOLOGY

Skull Practice

Forest Products Research has been moving at a fast pace during the past decade. Some of these developments are just reaching the markets today. Many of the following have been reported through the years in WOOD and WOOD PRODUCTS. Here are a few of the coined names for these developments and what they are:

Papreg. . .laminated paper; *Impreg* . . .resin stabilized wood; *Staybwood* . . .heat stabilized wood; *Lignostone & Lignofol*. . .compressed wood; *Compreg*. . .resin stabilized compressed wood; *Staypak*. . .heat stabilized compressed wood; *Acetylated wood*, uralloy, hydroxylin. . .chemically modified wood. Looks like the industry terminology is becoming more complicated each year.

MISCELLANEOUS

Maintenance

The lack of a sound and realistic maintenance program in your plant is costing you as much as two to three times the amount such a program will cost. These costs are to be found in the areas of shutdown time and loss of production, lower quality products, costly repairs, more acci-

(Continued on page 16)

KILN DRIED LUMBER

FOR

immediate shipment

EITHER TRUCKLOAD OR CARLOAD LOTS

Northern Hardwoods

Basswood	4/4 to 6/4
Birch	4/4 to 8/4
Hard Maple	4/4 to 8/4
Soft Elm	4/4 to 12/4

Appalachian Hardwoods

Beech	5/8 to 10/1
Red Oak	5/8 to 8/4
White Oak	5/8 to 8/4

Southern Hardwoods

Ash	4/4 to 8/4
Basswood	4/4 to 6/4
Hackberry	4/4,to 5/4
Sap Gum	5/8 to 8/4
Tupelo Gum	4/4 to 8/4
Red Gum	4/4
Soft Maple	4/4 to 12/4
Sycamore	5/8, to 8/4
Poplar	3/4 to 12/4
Hickory (AD)	8/4
Cypress (AD)	4/4

Mahogany

Honduras	3/4 to 12/4

Walnut

Steamed	5/8 to 8/4

Pine

Parana (Brazilian)	4/4, 5/4

The above hardwoods are in No. 1 Com. & Better Grades

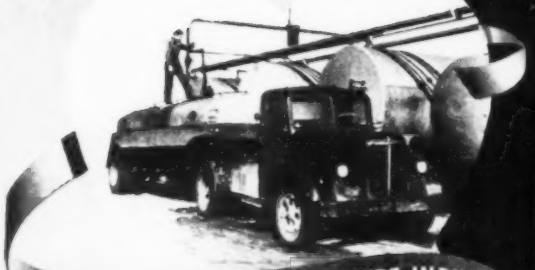
and generally are available in higher grades.

Your inquiry will receive prompt and courteous attention

MONARCH HARDWOOD LUMBER CO.
3304 W. Belmont Ave.
Chicago, Ill. Tel. JUniper 8-1234

DEPENDABLE PRODUCERS OF QUALITY

in RESIN GLUES



IN THE HEART OF THE FURNITURE INDUSTRY

FORDS, NEW JERSEY — EAST

CALUMET CITY, ILLINOIS — MID-WEST

THOMASVILLE, NO. CAROLINA — SOUTH

RANGE: Catalin offers a complete range of Urea, Phenolic and Resorcinol resin glues for all types of hot and cold press operations.

QUALITY: Catalin resin formulations have been developed to produce economical, durable bonds that comply with commercial requirements as well as with government specifications for interior, exterior and marine grade applications.

Quality Control Laboratories, working closely with the Catalin staffs, rigidly test the purity of all chemical ingredients before, during and after resin processing . . . thus maintaining finest standards for Quality and Uniformity.

SERVICE: Three modern, large capacity Catalin processing plants . . . strategically located in the heart of furniture, plywood and woodworking areas . . . are conducive to eminently satisfactory glue service. Deliveries are so prompt that Catalin customers do not need to carry large, on-hand inventories of resin glues.

TECHNICAL ASSISTANCE: The basic resins as developed and produced by Catalin, satisfy most wood glueing applications—with little or no modification. Where working conditions and product specifications demand special adhesive qualities, Catalin technicians will welcome the opportunity to compound special formulas and assist in determining production procedures for improved quality and efficiency. Inquiries invited!

. . . for fast shipments of

- *New York, N. Y. • One Park Ave. • Tel: MUrray Hill 3-2100*
- *Chicago, Ill. • 221 No. LaSalle St. • Tel: CEntral 6-3066*
- *Providence, R. I. • 49 Humboldt St. • Tel: ELmhurst 1-2389*
- *Thomasville, No. Carolina • Tel: Thomasville 814*
- *Grand Rapids, Mich. • 845 Griggs St., S.E. • Tel: Grand Rapids 3-4479*
- *Hudson, Ohio • Tel: Hudson 482*

CATALIN CORPORATION OF AMERICA

ONE PARK AVENUE • NEW YORK 16, N. Y.

Only the Best that

Northern Hardwoods Offer

Rotary, Sliced, & Half-Round

VENEERS

In The Following Species:

Birch – Maple – Bass – Ash

Oak – Elm – White Pine

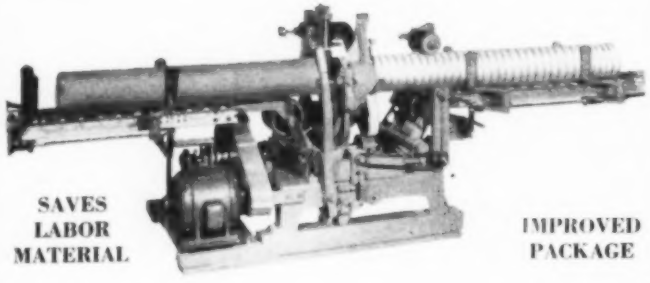
PENOKEE VENEER COMPANY

TELETYPE, MELLEN, WIS. 29 TELEPHONES 205-3313

P. O. BOX 220

MELLEN, WISCONSIN

PIERCE MODEL D-S WRAPPING MACHINE



SAVES LABOR MATERIAL

IMPROVED PACKAGE

The Model D-S spiral wrapping machine is a production machine that wraps packaged window frames, bundles of slats or molding in 5 to 8 seconds. Each layer of paper is automatically glued to the preceding layer. The tight binding prevents any internal movement of individual boards during shipment—the usual cause of package breakage. Available on sale or lease basis.

Write for specifications. *Send us your wrapping problem.*

PIERCE WRAPPING MACHINE COMPANY

Builders of production wrapping machinery since 1910

625 W. Jackson Blvd., -:- Chicago 6, Ill.

TRENDS

(Continued from page 14)

dents to your men, increased fire hazards and the hidden costs of the time your executive staffs take from more productive duties. In addition, the lack of maintenance programs is holding back the application of the many technological advances that could be applied generally to our machinery and equipment such as electronics, hydraulics, variable speed transmissions, etc., and increase its efficiency and production. Why not set up some maintenance schools throughout the country like our grading, dry kiln, gluing and other schools which have proven their worth many times? Would you be interested in such a school which would help you setup the department and train the maintenance men?

Centenarians

Has your company been in continuous existence for 100 years? The WOOD & WOOD PRODUCTS editors are compiling a list of such companies in the Forest Products Industry. We will appreciate your help . . . if your company or if you know of some company that has reached the century mark, please let us know.

Exit the Craftsman

Through the years, the craftsman was the mainstay of the woodworking industry. Most of them came from abroad after years of hard apprenticeships. These men knew their trades and their machines and took loving care of the latter. Today most of these craftsmen are retired or old men. Let's face the facts. . . today our industry is following the pattern of the machine tool industry, the greater percentage of the machine operators being merely feeders and offbearers and not craftsmen. This means that our maintenance of equipment programs in all sectors of the industry must be centralized and top maintenance programs under the supervision of a competent millwright put into effect as soon as possible. Machinery manufacturers should also take cognizance of this trend with one-shot lubrication systems, push button accurate setting devices, automatic foolproof feeds, etc.

For More Profit from Wood read WOOD combined with WOOD PRODUCTS.

MATTISON

303

Automatic Stroke Sander

From the standpoint of design, construction, smoothness of operation, and appearance, the 303 is in a class by itself.

Here is what you can expect from the 303:

Faster output . . . Better quality of work . . . Trouble free operation.

Stabilized hydraulic stroke.

Belt speeds to meet your needs.

Smooth operation of sanding shoe entire length of stroke.

Controls within easy reach of operator.

Double belt model speeds up production by reducing handling time, and in many cases eliminates drum sanding operation.

Mattison Machine Works, Rockford, Illinois
Please send for Circulars on Sanders . . . Automatic Stroke . . . Hand Lever . . . Hand Block . . . Variety . . . Edge . . . Rip Saws . . . Moulders . . . Turning Lathes

Name..... Title.....

Firm.....

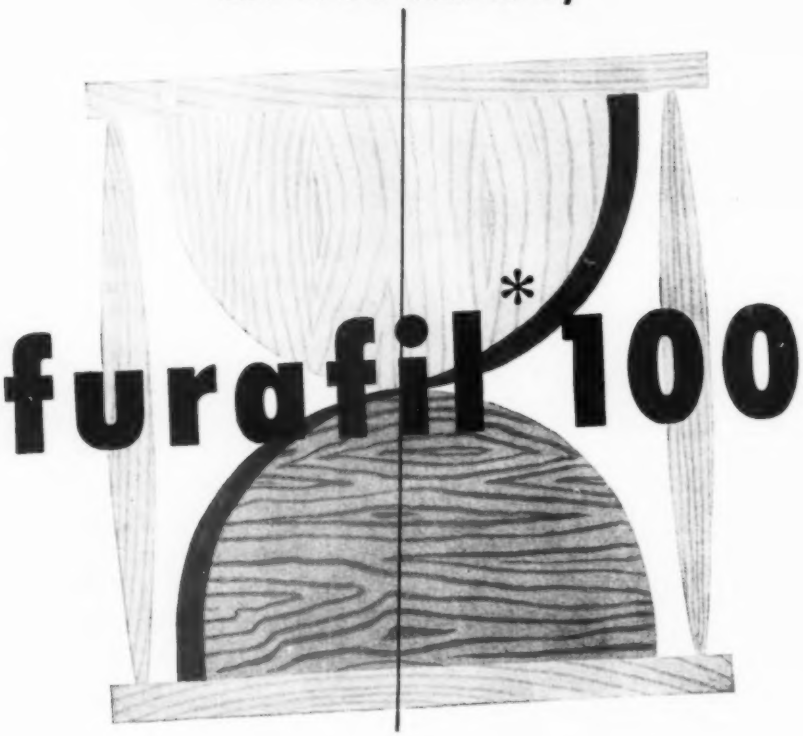
Street.....

City..... State.....

MATTISON MACHINE WORKS

ROCKFORD · ILLINOIS

now is the time to try



NEW Extender For Phenolic Plywood Glues

Furafil 100 is a new low-cost extender for phenolic resin glues used in exterior plywood. This new product is commercially available now and is shipped in carload or truckload lots from Tacoma, Washington, and Sharonville (Cincinnati), Ohio.

Furafil 100 is a chemically processed agricultural material available throughout the year. It is made up principally of modified lignin, cellulose, and resinous material with the lignin and resins accounting for about 40% of the total. Furafil 100 is ground to meet the following specification:

Through 100 mesh—99%
Through 200 mesh—95%
Through 325 mesh—90%

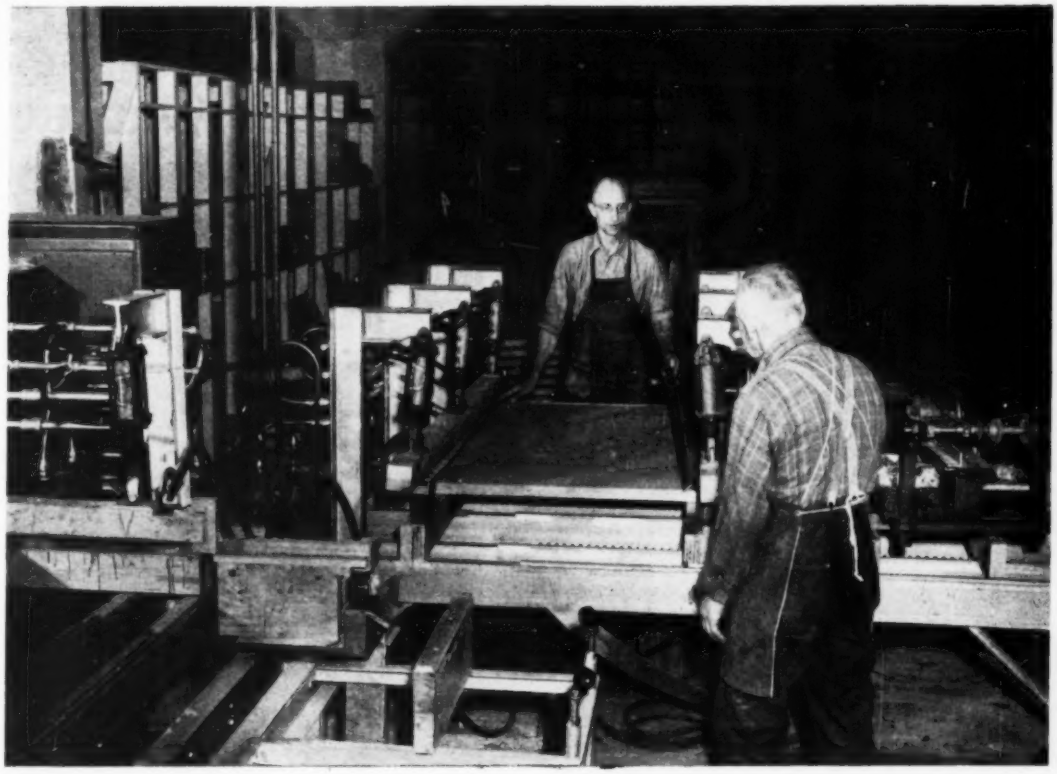
Glue formulations with Furafil 100 are now in use in the Douglas fir plywood industry. Furafil's low cost, high resin content, uniformity and ready availability make it an excellent glue extender.

Consider Furafil 100 as a new means to improve your glue line quality and lower your cost. Write for samples and try this new extender.

* Reg. U. S. Pat. Off.

The Quaker Oats Company
3428 The Merchandise Mart
Chicago 54, Illinois

CHEMICALS DEPT.



Standard Furniture *Cuts gluing costs 44%* with THERMEX Bonding Equipment

THERE USED TO BE four men in this picture—four men to glue desk top bindings. Now there are only two. To quote Standard Furniture Company of Herkimer, New York: "THERMEX electronic bonding equipment has cut labor cost on this operation by 44%".

Controls on THERMEX bonding equipment are simple, easy to handle. Special skills not required.

Standard's press consists of two dual-controlled units. Side bindings can be glued while end bindings are being prepared. Thus the operators can complete a binding cycle in a minute and a quarter.

Savings are spectacular. The complete setup—THERMEX equipment, presses and cut-off saws—paid for itself in just 47 weeks. And that's not all!

Since the equipment is compact, 3000 square feet of floor space was freed when the old installation was replaced. With no further need for a drying kiln, another 1000 square feet was liberated.

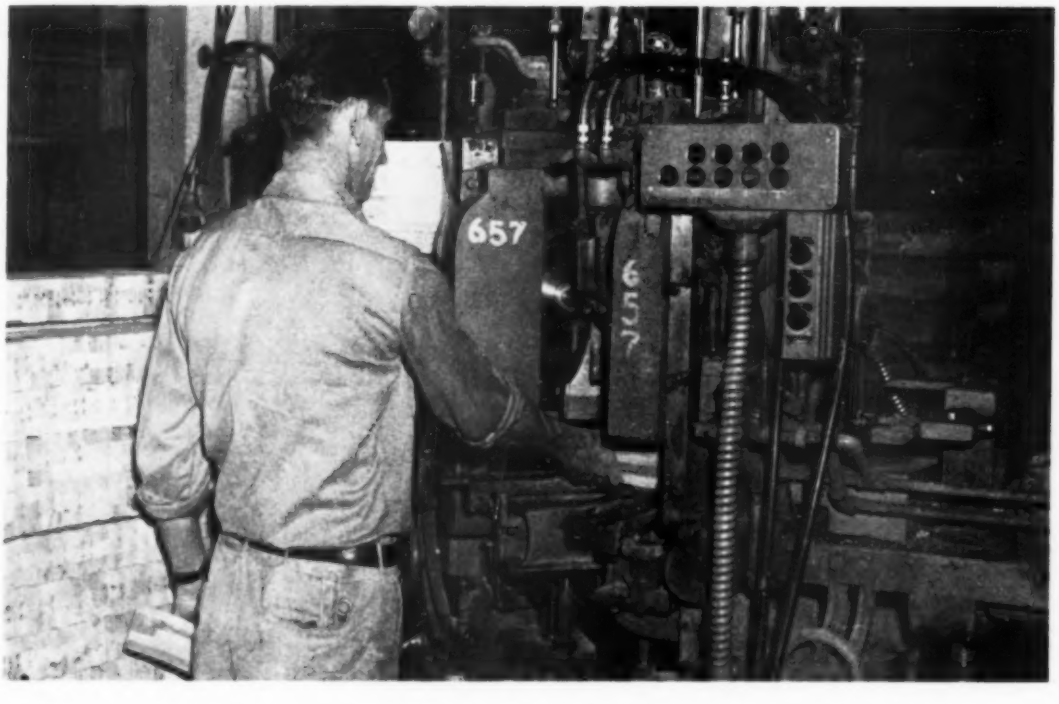
Why not take advantage of savings like this? A THERMEX field engineer will be glad to study your operations and make recommendations—at no obligation. Write The Girdler Corp., Thermex Div., Louisville 1, Kentucky.

THERMEX — T. M. Reg. U. S. Pat. Off.

Thermex
ELECTRONIC BONDING EQUIPMENT

EDGE-BONDING OF LUMBER • MOLDING OF LAMINATED PARTS • BONDING PANELS-TO-FRAMES • FABRICATION OF ASSEMBLIES • BONDING OF PLYWOOD

Frost Hardwoods Promote Lower Cost Through Higher Output



Frost hardwoods step up your unit volume because Frost's skillful drying insures proper affinity of wood for glue. More than that, Frost stock gives you highest cutting value with least waste, all adding up to an expedited flow of semi-finished units to their final machine processing. These are the premium values for which Frost Hardwoods are preferred by woodworking plants that know them; these the reasons for *your* inquiry on your next schedule.

UNIFORM GRADES QUALITY MANUFACTURE

FROST LUMBER INDUSTRIES, Inc.

SHREVEPORT, LOUISIANA

MARKETS

These prices are estimates made available by Mr. George Land, publisher of the *Hardwood Market Report*, and reflect prices as indicated in his copyrighted issue of October 13, 1951. Mr. Land's complete report is available weekly; those who want the entire list should contact him c/o Box 5716, Memphis 4, Tenn.

SOUTHERN HARDWOODS

F.O.B. mills—Texas & Louisiana area—estimate of present FOB Texas & Louisiana mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Southern Hardwoods in carload quantities, random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M', on straight cars of upper bracket grades premiums are frequently being paid.

	FAS	No. 1C	No. 2C
ASH—FIRM TEXTURE			
4/4-in.	155	108	62
6/4-in.	168	120	65
8/4-in.	180	140	70
BASSWOOD			
4/4-in.	165	130	80
6/4-in.	170	135	87
8/4-in.	180	145	90
BEECH			
4/4-in.	125	100	62
6/4-in.	150	112	67
8/4-in.	167	127	72
CHERRY			
Same as Appalachian			
RED GUM—PLAIN			
4/4-in.	200	150	70
6/4-in.	230	170	75
RED GUM—QUARTERED			
4/4-in.	225	175	75
6/4-in.	250	200	90
8/4-in.	260	210	95
SAP GUM—PLAIN			
4/4-in.	120	105	47
6/4-in.	155	135	
8/4-in.	160	140	
HACKBERRY			
4/4-in.	110	90	65
6/4-in.	130	108	75
8/4-in.	135	110	75
HICKORY			
Temporary suspended			
MAGNOLIA			
4/4-in.	170	135	78
6/4-in.	185	143	89
8/4-in.	205	150	87
SOFT MAPLE—WHAD			
4/4-in.	131	110	67
6/4-in.	145	170	77
8/4-in.	155	125	80
SOFT MAPLE—WHND			
4/4-in.	115	90	60
6/4-in.	130	105	75
8/4-in.	135	110	80
RED OAK—PLAIN			
4/4-in.	180	100	62
6/4-in.	190	135	
8/4-in.	200	140	
WHITE OAK—PLAIN			
4/4-in.	185	115	63
6/4-in.	195	140	
8/4-in.	205	145	
PECAN			
4/4-in.	114	94	48
6/4-in.	130	110	66
8/4-in.	155	130	70
POPLAR—PLAIN			No. 2A
4/4-in.	170	130	75
6/4-in.	185	140	87
8/4-in.	205	150	90
SYCAMORE—PLAIN			No. 2C
4/4-in.	117	97	60
6/4-in.	125	105	60
TUPELO—PLAIN TUF TEXTURE—DEEP SWAMP			
4/4-in.	120	105	47
6/4-in.	155	135	
8/4-in.	160	140	
WILLOW			
4/4-in.	142	120	60
6/4-in.	142	122	67
8/4-in.	150	125	70

APPALACHIAN HARDWOODS

F.O.B. mills—Johnson City, Tennessee area—estimate of present FOB Appalachian mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade of band-sawn Appalachian hardwood in carload quantity, random widths & lengths, rough, air dried, & graded in accordance with NHLA rules of inspection. Prices in dollars per M', on straight cars of upper bracket grades, premiums are frequently being paid. Basis selected for the purpose of indicating transportation costs to principal consuming markets from Johnson City, Tennessee area.

(Continued on page 22)

DID YOU KNOW

HOW STRONG A TREE CAN BE?

A Douglas fir tree 200 ft. tall is so strong and rugged that its roots, anchored in 20,000 cu. ft. of earth, support a weight of 33 tons!

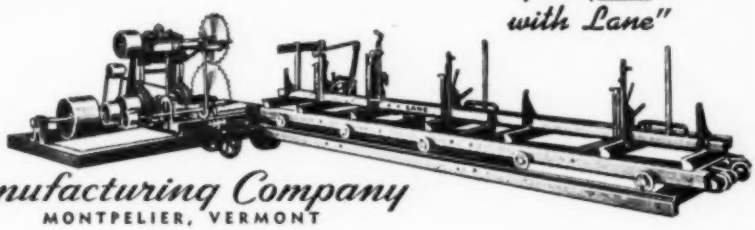
and did you know.....

LANE MILLS are built so strong they will stand the terrific strain of long, hard usage on frame and carriage.

The No. 2 Mill illustrated is of extra heavy construction, to take the wear and tear of the "big stuff" — and will produce 1500 to 2500 ft. of lumber per hour. Replace old, inefficient equipment with Lane Mills — increase your logging profits.

Write for full information TODAY.

"You Gain with Lane"



LANE

Manufacturing Company

MONTPELIER, VERMONT

(Continued from page 21)

TOUGH ASH

	FAS	FIF	No. 1C	No. 2C
4/4-in.	160	150	110	67
6/4-in.	180	170	122	72
8/4-in.	190	180	147	85

BASSWOOD

				No. 2A
4/4-in.	180	170	130	84
6/4-in.	190	180	137	94
8/4-in.	195	185	147	96

BEECH

				No.2C
4/4-in.	145	135	110	75
6/4-in.	160	150	120	75
8/4-in.	170	160	130	80

BIRCH

4/4-in.	205	195	140	80
6/4-in.	220	210	150	85
8/4-in.	230	220	155	90

BUCKEYE

4/4-in.	135	125	100	65
6/4-in.	160	150	115	73
8/4-in.	165	155	120	78

CHERRY

4/4-in.	200	190	135	80
6/4-in.	235	225	160	85
8/4-in.	250	240	170	90

CHESTNUT

4/4-in.	165	...	115	60
6/4-in.	170	...	120	62
8/4-in.	175	...	125	62

HICKORY

4/4-in.	125	115	78	53
6/4-in.	145	135	86	58
8/4-in.	165	155	90	60

HARD MAPLE

4/4-in.	190	180	125	80
6/4-in.	200	190	135	84
8/4-in.	205	195	145	90

SOFT MAPLE

4/4-in.	160	150	115	67
6/4-in.	170	160	125	69
8/4-in.	175	165	130	72

RED OAK—PLAIN

	FAS	FIF	No. 1C	No. 2C
4/4-in.	185	175	120	
6/4-in.	200	190	135	
8/4-in.	215	205	145	

WHITE OAK—PLAIN

4/4-in.	200	190	125	
6/4-in.	220	210	145	
8/4-in.	225	215	155	

WHITE OAK—WHND

4/4-in.	115	105	85	..
6/4-in.	140	130	110	..
8/4-in.	150	140	115	..

YELLOW POPLAR—PLAIN

				No. 2A
4/4-in.	210	200	140	85
6/4-in.	220	210	150	93
8/4-in.	230	220	160	..

POPLAR SQUARES

	FAS	No. 1C & SD
4x4-in.	245	175
6x6-in.	280	190
8x8-in.	340	240

WALNUT—STEAM TREATED

	FAS 6' & up	FIF 6' & up	No. 1C	No. 2C
4/4-in.	350	305	185	80
6/4-in.	370	325	210	95
8/4-in.	385	340	235	100

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

NORTHERN HARDWOODS

Estimate of present FOB Wausau, Wisconsin mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Northern hardwoods in carlond quantities random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'.* On straight cars of upper bracket grades, premiums are frequently being paid.

BROWN ASH

	FAS	No. 1C	No. 2C
4/4-in.	145	105	73
6/4-in.	155	120	83
8/4-in.	160	130	88

BASSWOOD

4/4-in.	180	125	78
6/4-in.	190	135	88
8/4-in.	195	145	96

BEECH

4/4-in.	145	100	68
6/4-in	160	115	78
8/4-in.	165	120	80

BIRCH

4/4-in.	265	145	80
6/4-in.	275	160	90
8/4-in.	280	175	100

ROCK ELM

4/4-in.	135	115	65
6/4-in.	145	125	75
8/4-in.	150	135	80

SOFT ELM

4/4-in.	125	105	71
6/4-in.	135	115	81
8/4-in.	140	120	86

HARD MAPLE

4/4-in.	190	130	78
6/4-in.	200	140	81
8/4-in.	205	145	82

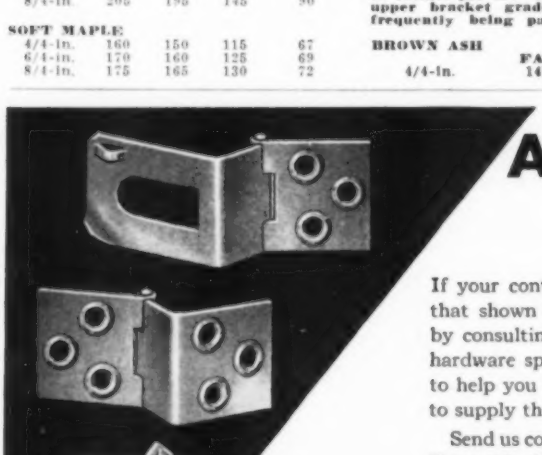
SOFT MAPLE

4/4-in.	155	120	72
6/4-in.	170	130	82
8/4-in.	185	140	90

RED OAK

4/4-in.	175	125	77
6/4-in.	185	145	82
8/4-in.	195	155	85

* Air dried Northern Hardwoods are no longer available and sales presently being made cover green stock or stock only partially seasoned. Orders are being placed for stock to be cut and shipped green when accumulated.



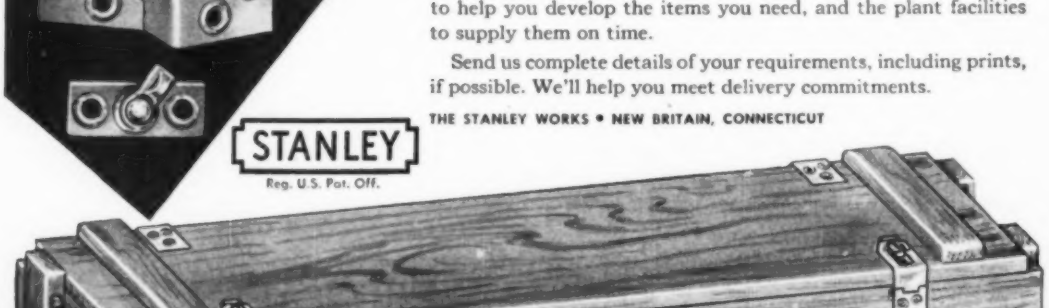
Ammunition Box Hardware

If your contracts call for hardware for ammunition boxes like that shown here, or for other ordnance equipment—save time by consulting Stanley. The largest manufacturer of hinges and hardware specialities, The Stanley Works has the "know-how" to help you develop the items you need, and the plant facilities to supply them on time.

Send us complete details of your requirements, including prints, if possible. We'll help you meet delivery commitments.

THE STANLEY WORKS • NEW BRITAIN, CONNECTICUT

STANLEY
Reg. U.S. Pat. Off.



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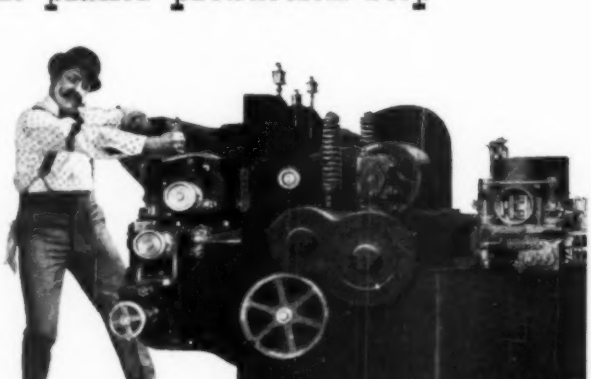
TWO GREAT VALVE-IN-HEAD ENGINES—the 105-h.p. Loadmaster or the 92-h.p. Thriftmaster—to give you greater power per gallon, lower cost per load • **POWER-JET CARBURETOR** — for smooth, quick acceleration response • **DIAPHRAGM SPRING CLUTCH**—for easy-action engagement • **SYNCHRO-MESH TRANSMISSIONS** — for fast, smooth shifting • **HYPOID REAR AXLES**—for dependability and long life • **NEW TORQUE-ACTION BRAKES**—for light-duty models • **PROVED DEPENDABLE DOUBLE-ARTICULATED BRAKES** — for medium-duty models • **NEW TWIN-ACTION REAR BRAKES** — for heavy-duty models • **NEW DUAL-SHOE PARKING BRAKE** —for greater holding ability on heavy-duty models • **NEW CAB SEATS**—for complete riding comfort • **NEW VENTIPANES** — for improved cab ventilation • **WIDE-BASE WHEELS**—for increased tire mileage • **BALL-TYPE STEERING**—for easier handling • **UNIT-DESIGN BODIES**—for greater load protection • **ADVANCE-DESIGN STYLING**—for increased comfort and modern appearance.

Does your whole planer production stop while your profilers are changed like this?



OR

does your setup man change patterns the time-saving way--with Stetson-Ross "Pre-Set" cutterheads in ball bearing "cartridge" units like this

THE SETUP MAN in this modern planing mill slides the ball bearing profile "cartridge" unit easily into place in the matcher—no outboard bearings, locking nuts, or sleeves to remove—no jointing on the machine. Down time for pattern changes is thus reduced 75% to 90%.

With the Stetson-Ross "cartridge" profile unit, the time-consuming job of installing and positioning the head accurately on the arbor, securing bearings, and jointing is all done in the grinding room where it can be done carefully and accurately without delaying production. Here you have a complete *"production package"* which need not be disturbed with each pattern change. Valuable setup hours are "stored" for later re-use. Get more facts about this "years ahead" feature. No obligation. Literature will be mailed promptly.

STETSON-ROSS MACHINE COMPANY
SEATTLE 4, WASHINGTON

Export Division, 301 Clay St., San Francisco 11, California

QUICK SOLUTION TO SERVICE PROBLEMS

When it comes to adhesives, you want prompt, efficient attention to your needs. And that's why so many woodworking men *depend* on Monsanto service.

For instance: In the South, from Monsanto's Southern distribution centers at Laurinburg, N. C. and Anniston, Ala.—truck shipments regularly *speed* job lot orders over a radius of three-hundred miles, providing the best service and fastest delivery to manufacturers in this area.

For *extra* economy of purchase—as well as for fast, sure service—many manufacturers in the South, and from Maine to California, prefer to buy their Monsanto adhesives in tank car loads.

Whatever your adhesive needs, investigate Monsanto's *full range* of adhesives . . . on "short order" delivery. MONSANTO CHEMICAL COMPANY, Plastics Division, Room 5206, Springfield 2, Mass. West of the Rockies, please address inquiries to MONSANTO CHEMICAL COMPANY, 911 Western Avenue, Seattle 4, Washington. (Monsanto in Canada: Montreal.)

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Where does ATLANTIC LUMBER go?

Photograph by courtesy of M. P. Moller, Inc. As in many church interiors, this beautiful console is rift-sawn white oak.

Whether Atlantic Lumber reaches the final owner as a finished organ, a suite of furniture, or in some other valued item, you can be sure the manufacturer is well serviced by his Atlantic Man.

Your Atlantic Man is a trained service representative whose experience and knowledge can be helpful to you. It pays you to ask his advice.

THE ATLANTIC LUMBER CO.

88 BROAD STREET, BOSTON, 4, MASS.
1055 SENECA, BUFFALO 10, N. Y.

Wood Puzzlers

When replying please send answers to WOOD & WOOD PRODUCTS and refer to the number after the title. We will be glad to forward it for you. Send us your problems, too. Perhaps other readers have the answers.

Cornel, Birch and Beechwood Blocks—No. 15

We manufacture Shuttles and Bobbins, but due to scarcity of Cornel (Dogwood), Birch and Beechwood blocks, we are unable to procure same from our regular suppliers. Will you kindly favour us by furnishing names of exporters (preferably sawmills) of this commodity to India. (Bombay)

8/4 M Hard Maple—No. 16

We have a large government contract and need a large supply of 8/4 M Hard Maple or Birch. Can you advise us who might be able to supply all or part of this requirement. (Ala.)

Extension Table Slides—Factory Trucks—No. 17

Please send us a list of manufacturers of extension table slides. We would be especially interested in those manufacturers located in the Southern states nearer us. We are further interested in purchasing 12 to 24 used factory stake trucks in good operating condition. Any information you can supply as to possible sources for such an item would be most appreciated. (Fla.)

Dimension Stock—No. 18

We are looking for sources of supply of dimension stock to our specifications in Poplar, Spruce and Northern Pine. This lumber must be kiln dried to 10% moisture content. (Mass.)

Artillery Tea-Wagon Wheels—No. 19

Could you please give us the name of a company manufacturing Artillery Tea-Wagon wheels? Any information that you could give us regarding this item will be greatly appreciated. (Cal.)

Single Ply Surfaced Poplar, Beech, Gum, Maple —No. 20

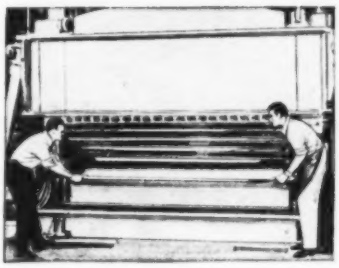
Would you please be good enough to send us the names and addresses of possible sources for ¾" thick single ply surfaced hardwood such as poplar, beech, gum and maple. (N.Y.)

Hand Portable Nailing Machine—No. 21

Can you tell us the name of a manufacturer of a small, hand-portable nailing machine? Something like a mallet actuated stapler, perhaps handling flat nails up to 4d would be ideal. (Cal.)

Borden's GLUE News

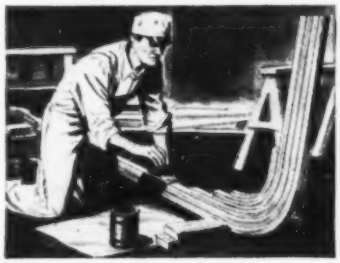
New glues and improvements in woodworking to help you speed production and cut costs



TROUBLE-SHOOTING CHART ON PLYWOOD

It's not always easy to find the reason for faulty gluing of hot-pressed plywood or furniture panels.

You can learn to spot the causes and cures if you use Borden's "Trouble-shooter" chart. Fully describes the "symptoms" to look for, also proper practice in storage, mixing, drying, selecting core stock and veneers, spreading, etc. Write for your free copy.



NEW, LOWER COST, ROOM-TEMPERATURE-SETTING, PHENOL RESORCIN RESIN GLUE

It's CASCOPHEN LT-68.

More economical because it uses less resorcin . . . yet meets Specification JAN-A-397 for a wood bond that's waterproof, boilproof, moldproof, heatproof. Storage life of over a year at 70 F.

It's also recommended for use with radio-frequency heating equipment. Tests at low density plate voltage of 2 KV and frequency of 8 MC show good bonds, even at 20 seconds, with wood failures up to 100%.

Write for free Bulletin TD-31 for full details.

HOW TO EFFECTIVELY R/F EDGE-GLUE DENSE WOODS

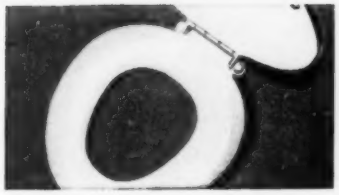
Set up for these conditions: 1. A square, smooth joint. 2. Good conductivity of glue mix. 3. A time lapse, often 8 to 12 seconds, after application of pressure and before power goes on. It takes a few seconds for rams to pull dense wood surfaces into intimate contact. Heat applied too quickly causes partial precure or weak bond with little penetration. 4. Adequate curing time. Dense woods require almost complete cure as compared to about 60% cure with low density woods.

HOW TO EFFECTIVELY GLUE MASONITE

Large areas of Masonite can generally be bonded satisfactorily with any type of water-base glue (casein, urea resin, resorcin, etc.), using ordinary wood-gluing techniques. In some instances, however, where the Masonite is to be glued to relatively narrow wood frames and a critical bond with full fibre failure is required, these rules should be followed:

1. The pebbly "screened" surface should be sanded smooth for best results.

2. The hard, polished surface of "tempered" boards should not be glued without sanding, unless a solvent is added to the glue. (Five parts of Ethylene Glycol added to 100 parts CASCOPHEN RS-216 and 20 parts Catalyst FM-60M does an excellent job on unsanded, polished "Presdwood" surfaces. Other types of adhesives might also be used in the same way or following wiping of the Masonite surface with the solvent.)



THERE ARE PROFITS IN WOOD WASTE

With a source of suitable wood waste, the right equipment and the right type of synthetic-resin binders, it is possible to make many types of products now made of solid wood, such as core stock or the toilet seat above.

Borden literature provides a lot of helpful information at no charge. Simply write for these bulletins . . . "General Problems in Making and Marketing Wood-Waste Products", "How to Make Core Stock from Wood Chips", "How to Make Hardboard from Sawdust".

NEW, EASIER WAY TO BOND METAL TO WOOD

It's possible to obtain full strength metal-to-wood bonds that show high wood failure without double spreading or high curing temperatures . . . thanks to CASCO FLEXIBLE CEMENT NT-442.

With CASCO, and simple techniques, you can now get strong, water-resistant, metal-to-wood bonds with a single glue application; cold, intermediate or hot press; or with high frequency heating.

Cost is comparable to ordinary wood gluing, with only the usual equipment needed. Casket cases, sink tops, frozen food cases, truck bodies are all being made by these easier techniques.

Full data in bulletin, "The Bonding of Metal to Wood". Write for it.

Address any question on the above data, or any gluing problem to

Borden's
CHEMICAL DIVISION
Dept. W-111, 350 Madison Ave.,
New York 17, N.Y.

from the BIGGEST

. . . comes the BEST

P-398 PLYOPHEN

RCI's plant in Seattle, Washington is the world's largest devoted to the production of plywood glues. Here you will find modern, up to the minute production facilities and testing methods that have made RCI products standards for quality throughout the entire plywood industry. And here is the home of P-398 Plyophen, the liquid, water-soluble, resin which makes possible better plywood bonding at lower costs! Testimony to its high quality is the fact that millions of pounds are used annually, for both exterior and interior plywood production. P-398 meets Government specifications, can be used with either hard or soft woods, and is Douglas Fir Plywood Association approved. For further information and a working sample write direct to the Sales Department in either Seattle or Detroit.

REICHHOLD CHEMICALS, INC.

RCI

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CHARLES A. GILLETT

SAM NICKEY, JR.

A. FLETCHER MARSH

Wood Salutes

With this issue, we are saluting three more top rank executives, each of whom is contributing his expert knowledge and experience in an important department of the forest products industries.

Charles A. Gillett

Few Americans have a broader knowledge of the nation's forest industries and their woodland management problems than Charles A. Gillett. Since 1949 he has been managing director of American Forest Products Industries, Inc., of Washington, D.C., national coordinator of the Keep America Green and Tree Farm programs.

Prior to assuming the directorship of AFPI, Mr. Gillett served for five years as chief forester for this industry-sponsored organization. He brought to AFPI a rich background of practical forestry experience gained in the South and Midwest.

A native of New York State, Mr. Gillett was born in Auburn, N. Y. and attended Cornell University, receiving his masters degree in forestry from that school in 1929. Prior to taking his graduate degree, Mr. Gillett served three years as extension forester for the state of North Dakota. From 1929 to 1933 Mr. Gillett was extension forester for Arkansas and in 1933 he was named Arkansas State Forester.

In 1939 Mr. Gillett left Arkansas to become industrial forester for the Seaboard Air Line Railway. In that position he did much pioneering work in the field of railway forestry.

Since coming to AFPI in 1944 Charles A. Gillett has had a substantial part in making the industry-encouraged Keep Green program, now underway in 30 states, one of the nation's most potent forest fire prevention forces. At the same time he has had an equally vital part in guiding the American Tree Farm System from a six-state, 7-million acre operation to a national movement embracing nearly 24,000,000 acres in 30 states.

Sam Nickey, Jr.

Sam Nickey, Jr., executive vice-president of Nickey Brothers, Inc., Memphis, Tenn., was graduated from Davidson College. He represents his firm and the hardwood lumber industry on the NPA—Lumber Manufacturers' Industry Advisory Committee and the National Security Industrial Association.

He is a past president of the Southern Hardwood Traffic Association and the National Lumber Exporters Association. Present hardwood club activities are centered around the executive committee of Southern Hardwood Producers, Inc.

Nickey Brothers has always been one of the most progressive flooring and hardwood plywood mills in the South. Mr. Nickey's membership on the Legislative Committee of the Keep Tennessee Green Association and his previous work with the Tennessee State Conservation Commission indicate the attention this management pays toward the perpetuation of the industry's natural resources.

Memphis activities include a presidency of the Memphis Zoological Society, and a member of the Memphis Park Commission. Mr. Nickey belongs to the Tennessee Club, Lumberman's Club, and the Memphis Country Club. Hunting, and fishing are major hobbies.

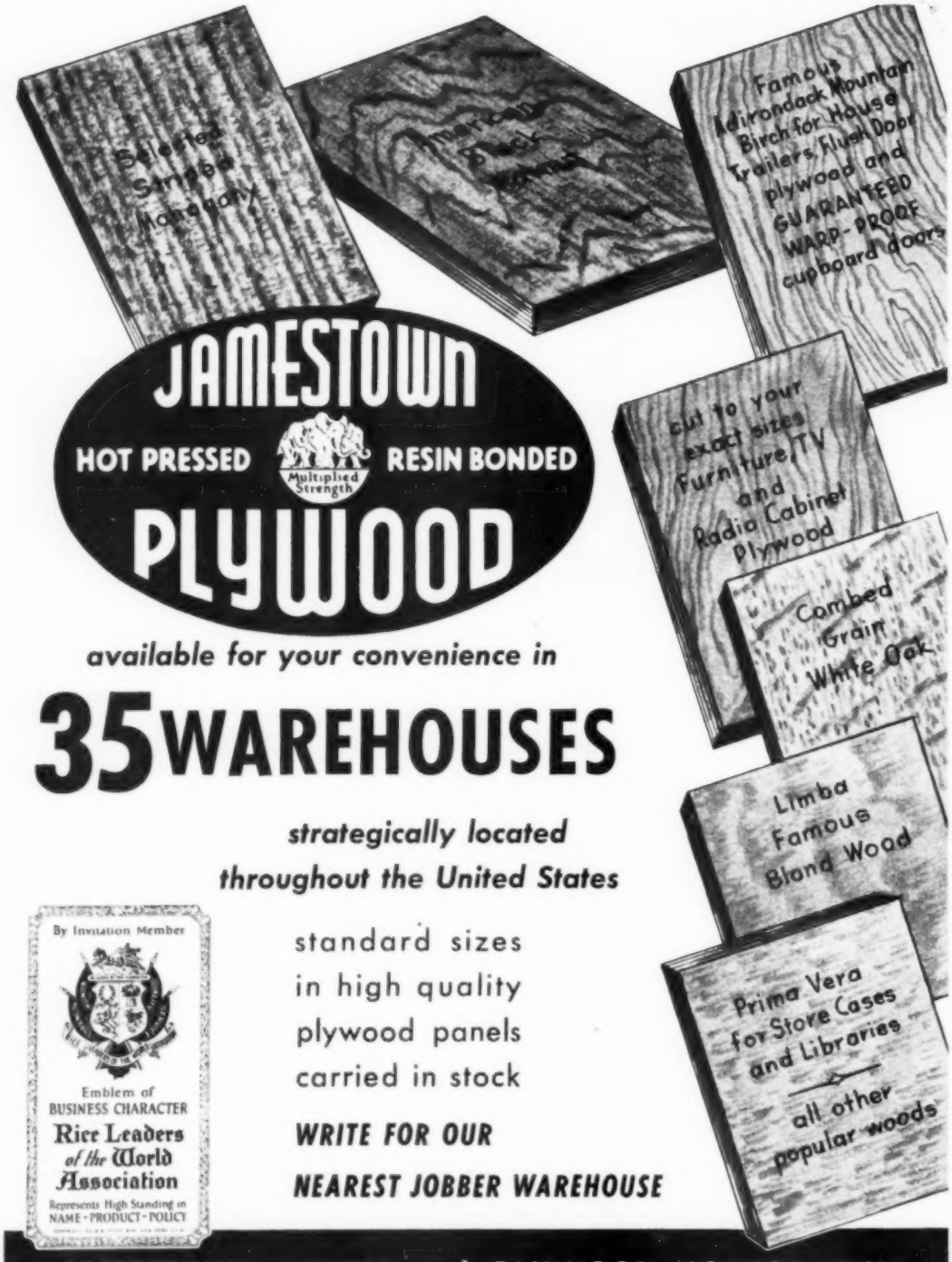
A. Fletcher Marsh

A. Fletcher Marsh, president of Marsh and Truman Lumber Co., Chicago, was born and raised in the lumber business. He states that he intends to keep at it forever.

When Fletcher was growing up he watched white pine timbers unloaded from lake schooners, and he heard more about heavy timbers than he did about "tuba fours." He learned early that the larger they are the harder they are to get.

A graduate of Yale Forestry School, he started in as an office boy for the newly formed Marsh & Truman Lumber Co. back in 1911. When World War I came along he joined the Army's construction division and represented them in New Orleans at the Southern Pine Emergency Committee. Later, Captain Marsh worked with the Douglas Fir Production

(Continued on page 69)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Famous Adirondack Mountain Birch for House Trailers Flush Door plywood and GUARANTEED WARP-PROOF cupboard doors
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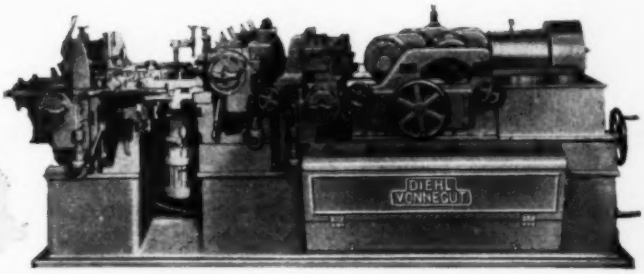
TORRENTS of work...



Diehl-Vonnegut Standard 4-Head Moulder —available in sizes 4"-6"-8"-10"-12".

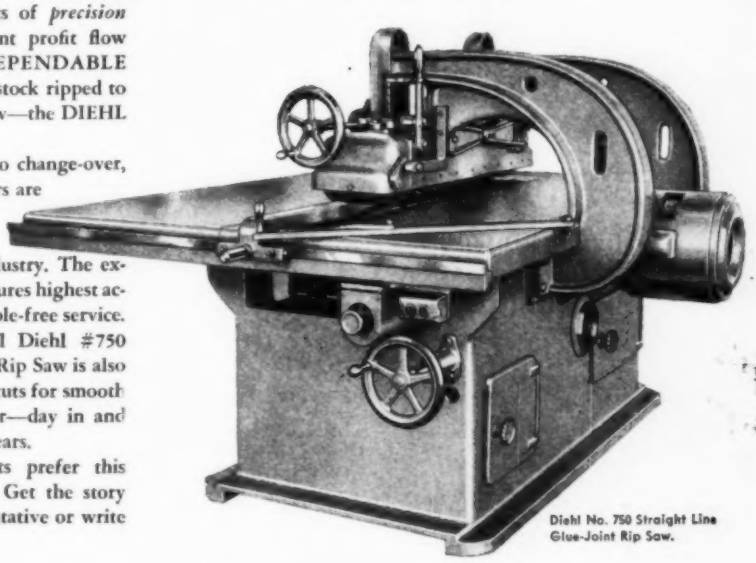
flow from this unbeatable combination.

Yes, unending torrents of *precision* work maintain a constant profit flow from the DIEHL DEPENDABLE MOULDERS, when fed stock ripped to size by the Super Rip Saw—the DIEHL #750.

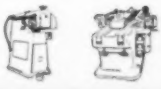
Easy to operate, easy to change-over, Diehl-Vonnegut Moulders are the workhorses of the high speed, precision wood-working industry. The exclusive Spindle design assures highest accuracy over years of trouble-free service.

The smooth, powerful Diehl #750 Straight Line Glue-Joint Rip Saw is also tops—turns out accurate cuts for smooth feeding through moulder—day in and day out—for years and years.

Profit-producing plants prefer this unbeatable combination. Get the story from your Diehl representative or write for folder.



Diehl No. 750 Straight Line Glue-Joint Rip Saw.



On the Banks of the Wabash

THE G. M. **Diehl** MACHINE WORKS, INC.

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Twin Threads Mean "Twice as fast"

You can identify TWIN-fast Reg. U. S. Pat. Off. by its twin threads centered point relieved shank parallel sides

Fasten wood to wood, plastic to wood, metal to wood twice as fast—and tighter!

Exclusive double thread of TWIN-fast Screws doubles the thread pitch . . . enters the material twice as far for each turn of the driver—*without extra effort*. Result—

. . . FASTER DRIVING

. . . LESS FATIGUE

. . . LOWER COSTS

Other TWIN-fast Reg. U. S. Pat. Off. features improve fastenings

Centered point helps quick start, balanced driving.
Relieved shank eliminates "wedge action" and splitting.
Parallel sides (no taper except at point) give greater thread contact, tighter holding—often allows using fewer or smaller screws.

Write for new TWIN-fast Reg. U. S. Pat. Off. bulletin to any of these firms:

Continental Screw Company
New Bedford, Mass.

National Screw & Manufacturing Company
Cleveland, Ohio, and Los Angeles, Calif.

Rivco, Inc.
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Southington Hardware Manufacturing Company
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Stowell Screw Co., Ltd.
Montreal, Canada

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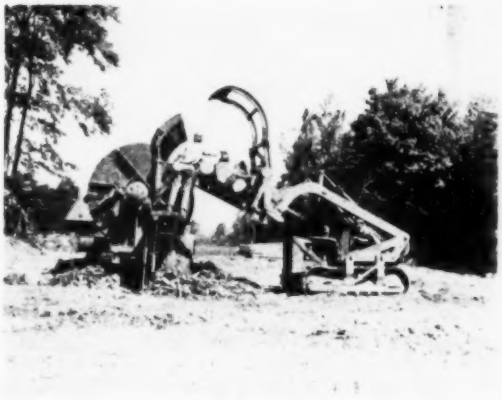
Can be furnished with either Slotted or Phillips Recessed Head

TWIN-fast

Reg. U. S. Pat Off.

Pat. Nos. 2,314,391 - 2,314,390 - 2,373,878 - 2,373,948 and 2,483,196

The Faster Driving . . . Cost Cutting Fastener



TWO VIEWS of the new MURCO Adams-Clark barker which operates on an entirely new principle.

New, Small Log Barking Units

New methods of barking logs in the woods are of high interest at this time. Here is the latest report on two of the new units which show promise for solving the barking problem.

by BILL HOGAN

Two new barking machines have been developed that appear very promising for small logs and pulpwood. One is the MURCO Adams-Clark Portable barker developed in this country and manufactured by the D. J. Murray Co. The other is the Anderson Pneumatic barker developed in Sweden. Both are entirely different than any other machines now on the market.

The MURCO Adams-Clark machine was developed in the South for use on pine pulpwood cut in 5' lengths, but has proven so successful that it is now used in the Lake States on 8' pulpwood up to 14 inches in diameter. It is mechanically possible to construct even larger units.

It is a drum barker but unlike other similar machines the drum does not rotate. Wood is propelled around in the drum by a center axle to which arms are attached. These arms form pockets that hold the wood. This assures frequent contact of each pulp stick or log with the lower portion of the drum. Since the wood does not just roll along the drum surface but is pushed over it, projections, irregularities and other barking aids built into the drum are very effective.

Drums for short wood cut in the South are mounted on single rear axle trucks, but drums for longer wood are mounted on tandem axle trucks. Power to drive the central axle in the drum is obtained from the truck motor through a power take-off. An air compressor is also coupled to the truck motor. This provides air to operate pistons that open and close the two doors on the drum. One is on the upper portion of the drum to permit loading of wood and the other is on the lower portion to discharge peeled wood.

In the South the machine is used like the familiar ready-mix concrete mixers. Wood is loaded in the woods and peeled while the truck is en route to the landing along the main haul road. Used in this manner production is from 12 to 15 cords per day. Used at a landing on 8 foot wood, production is from 25 to 35 cords per day with a four man crew.

It only requires from one to four minutes to peel a charge of wood that averages from ½ to 2/3 of a cord. A far greater amount of time is required to load and unload the wood. At permanent or semi-permanent settings, conveyors can be installed to reduce this time and the number of men required.

An entirely different principle is used by the Anderson barker developed early in 1950. Logs 8 feet and longer are fed endwise through a rotating ring. Feed rolls and guides prevent the logs from turning. Six barking tools are spaced equidistance around the inside of the ring. As the ring rotates around the log, these tools scrape the bark off the log in the same manner as barkers used on Douglas Fir peeler blocks.

Each tool works independent of the others and is forced against the log by an air actuated piston. Thus each tool in turn can work down into and out of depressions on the log as the ring rotates. All pistons obtain air from the same source thus assuring equalized pressure on all tools regardless of their position. Air is also used to open the feed rolls that are held against the logs by springs.

Power to rotate the ring, feed rolls etc. is derived from electric motors. In comparison with other barkers, the power consumption is reported to be very low.

There are two feed rates at 30 and 60 lineal feet per minute with a single reverse feed rate. The present machine barks logs 8 feet or longer up to about 14 inches in diameter. Somewhat shorter logs can be barked. Construction of machines for larger logs is being considered.

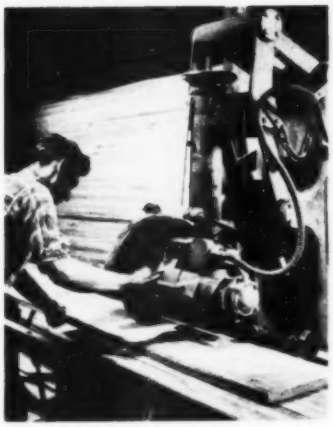
Spruce and pine logs are being barked although tests on hardwoods have proven that the machine will bark them satisfactorily. Frozen softwood logs cause no difficulty and are readily barked.

A published news item indicates that Mr. Gosta H. Wirtzvnori is in this country investigating market possibilities for the manufacturer Soderhamns Verkstader A. B. of Soderhamn, Sweden.

Both of these machines bark logs with very little wood loss. Small spots of bark sometimes remain in low places on the logs, but this is characteristic of all non-knife barkers. Persons who have issued reports on these machines indicate both machines appear to have considerable merit.

How to Improve Plant Production Methods

The furniture industry has been slow to adopt the newer methods of manufacture and reap the benefits therefrom according to this report given at the Midwest FPRS meeting in Oshkosh.



ROUGH MILLS have high labor costs.

by R. F. WILDER
Superintendent, Furniture Div.
Mengel Company

One must admit that technological progress in this industry is far behind many other lines of endeavor. Those improvements which have come are largely due to the initiative, research and development of industries outside our own. Most industry men are familiar with the materials salesmen coming to us with ways and means through their own product improvement for the improvement of our product. How many of us go to them with ideas of our own? Relatively speaking, very few.

Little Change

The product itself today is very little different than that which was made a hundred years ago. True, we have the so-called modern lines of design, but basically a piece of furniture is still about the same.

This industry is still plagued with high costs with a resultant high price to the consumer. Labor is the predominant cost factor in the furniture factory as well as a part of the various raw materials which the factory uses. And labor wage scales have every indication of continuing to rise.

What is the industry going to do? There are several lines of approach to be pursued. First, consideration of the use of certain substitute raw materials of a synthetic nature. Second, design improvement to better facilitate straight line methods of manufacture, product improvement, higher quality. Third, reduce labor costs. This paper is concerned with the labor aspect.

Generally speaking, the percentage of labor, both direct and indirect, to the sales dollar in the average case goods furniture factory runs from $20 to $30 per $100 manufacturers sales value. Let's use a labor figure of $26 which is believed to be about average for the Southern Furniture Manufacturers' Association for 1949. It is evident that this is a fertile field in which to operate.

Five Divisions

In the average factory the production department usually breaks down into five groups as follows: yard and kiln; rough mill; finish or machine mill; assembly; and finishing.

The yard and dry kilns are the beginning of a furniture factory's operation. Perhaps the most notable improvements are in methods of handling lumber and in kiln drying. *Lowerators* are widely used in connection with unloading and the contents of the car are stacked on kiln trucks as it is unloaded. Lumber remains on these trucks up to the crosscut saws, or up to the rough planers, depending on the type of operation in question. The use of *Lowerators* has its disadvantages if the car, which is being unloaded, is not segregated by lengths. Piling a lot of different lengths on a kiln truck is bound to cause a certain amount of kiln degrade due to warping and twist. Power driven fork-lift trucks are replacing the old horse drawn wagons or dollies which results in lower handling costs. Kiln drying itself has greatly improved. Certain chemicals, such as ureas, are used to further facilitate drying and reduce checking. A lot of labor is still being used in handling lumber before its first sawing operation. A lot of waste is developed through improper stacking and poor kiln drying.

The rough mill is next and it is usually composed of rough planers, X-cut saws, rip saws, jointers, glue wheels, finish planers and stickers or moulders. Handling, stacking, and trucking costs in most rough mills are particularly high because each machine or operation is often considered a thing unto itself. After every operation, the stock is piled on a truck and pushed to the next machine. This procedure is followed again and again until the material finally works its way through the last operation.

Rough Mills Conveyorized

Considerable improvement, however, is found in some rough mill operations where a big portion of the department is conveyorized. Kiln trucks of lumber come directly to the X-cut saws where the cuts are made and the boards fed on a belt which feeds two planers in tandem, then conveyed to jointers, then back to rip saws and on to trucks. Proper belts are also provided for handling waste to the hog.

This mechanization alone results in a sizeable reduction in labor. The author believes that the use of conveyors can go still further.

On glued up solid stock, there is no apparent reason why matching saws cannot be added to the rip saw line and further hooked in with glue wheels or other edge gluing equipment to eliminate the use of a separate matching saw setup. A still further improvement, which may be in use, is to conveyorize between the glue wheels or other edge gluing

INSPECTION STATION on the assembly line at the Mengel Furniture Division Plant.

equipment to and thru the finish planers.

The first objection to that is that unless one allows sufficient aging time between gluing and planing for the moisture in the glue to become distributed, sunken glue joints will develop. All right then, let's get a glue that is relatively low in moisture so that aging time won't be needed. Or improve the gluing technique to the point where less glue is used, or maybe have a combination of both. Nice problems for somebody. But the author believes it can be done.

Machine Room Methods

The next phase of the operation is in the finish or machine mill. Here are the tenon machines, shapers, routers, boring machines, dovetailers, lathes, miter saws, and sanders. There is a somewhat different problem in this department than in the rough mill because the machine mill lacks what might be called a common denominator which the rough mill has. In the latter case, most parts must have the same operations performed on them whereas in the machine mill, the type and number of operations vary with the individual piece or part.

Labor savings here depend largely on accurate planning of the work through the various machines, running as much footage as possible with a minimum number of machine setups, and the grouping of certain machines for the performance of constant or repetitive operations. The success of the latter is often controlled by the amount and variety of equipment available and the size of runs.

In machine mill operations, new and improved equipment gives manufacturers more work for fewer labor dollars. Great improvements have been made in double-end tenoners; automatic shapers are replacing the hand shapers in many cases; the double-end cut-off boring machines do in one operation what formerly several machines did. In spite of all this though, antiquated equipment is still in wide use.

In far too many cases *Top Management pays entirely too much attention to initial cost or capital investment and too little attention to the resultant labor savings that such investment will permit.*

Another important element of saving in machine mill operation is the extent to which jigs and fixtures are used. Mengel is a rabid exponent of such a method of operation. Whenever possible, the company builds a fixture or jig to hold a piece, or several pieces, of work to facilitate the operation or to permit more accurate machining.

Two Assembly Set-ups

In the assembly department there are a variety of setups ranging from the single station operation type to an approach to modern assembly line methods.

The writer likes to think of an assembly department as being divided into two groups—sub-assembly and main assembly. Great savings are possible by the intelligent use of subassemblies which very often permit the elimination of bottlenecks on the main assembly line. The removal of all non-standard operations from the main line results in a more efficient overall assembly department.

There are many different layouts in any assembly department as far as the main line is concerned, depending on amount of space available, type of furniture being manufactured, and the amount. These lines take the form of long lengths of dead rollers a little wider than the depth of the cases, a long power driven slat conveyor, or a long platform 15 or so inches high and from eight to ten feet wide. Work stations are positioned along the side of these lines and the length depends on the amount of production required. Regardless of which type of line used, one usually finds a group of air activated case clamps, fifteen or twenty feet from the beginning of the line. Immediately adjacent to the start of the line is found the top off press where the top is attached to the clamped case. After the top is put on, the case goes directly onto the line and passes by the various work stations where the case is glue blocked, drawer guides are attached, backs are put on unless they were previously applied at the case clamp, drawers are inserted and fitted, hand sanders go over the case and touch up areas requiring their attention, and finally the inspectors carefully inspect for defects so as to finally ready the items for finishing.

Wide Platforms Good

Of these three types, it is believed the dead roller conveyor the least desirable and probably the wide platform the most efficient. The power driven slat conveyor has the advantage of establishing a cadence or tempo. This has its disadvantages as the slowest worker on the line is likely to control the speed of the entire line or else slight his work in order to keep up, with a resultant lowering in quality. Sometimes, too, this is not

(Continued on page 66)

ALL PHASES of logging, be it in the woods, on the pond, or at the throttle are linked together in one swift chain.

Radio Speeds U. S. Logging

One hundred and twenty-three forestry operators in the Nation are cutting down on time as well as timber through the use of short wave radio networks. Here's how it works in the West.

by ALBERT ARNST
Weyerhaeuser Timber Co.
Tacoma, Washington

The latest FM ultra high-frequency radio antennae count in May, 1951, showed that 123 forestry industry operations in 23 states had installed industrial two-way radio communication. Twenty-three of these were in the southern region, two in the Lake States and three in New England. The nation's wood basket, or western region, accounted for the other 95 short-wave units.

Saturating The Air Waves

These timber growing and harvesting companies had 2789 sets in operation, saturating the air waves with tree talk about timber, logging work and forest fires. 263 of these sets were fixed or base units, while 2526 were mobile, installed on roving equipment operating on land, water or in the air.

Authority for these statistics is Elmer Surdam, secretary-manager of National Forest Industries Communications, with headquarters at Eugene, Oregon.

"Radio communication has become a necessity in private forests, where long range enterprises are growing trees on 100 year rotations. NFIC has been established to assure its members and the public that radio frequencies granted will be used with maximum efficiency," says Surdam.

NFIC-sponsored progress in harnessing the air waves is remarkable because the timber industry was allocated its first exclusive short wave frequency by the FCC on July 1, 1949.

In 1949, the industry was given a special Forest Products Radio Service by FCC. This service was assigned ten exclusive air lanes, four additional channels shared with Special Industrial Service, eleven frequencies to be shared with the petroleum industry and numerous others on a shared basis under developmental conditions.

Surdam describes radio communications as a vast party line system, calling for a local pattern for individual users. To establish good housekeeping and avoid overcrowding, central administration is needed. NFIC, supported by voluntary membership contributions, has been the answer.

Surdam describes the future of radio in glowing terms.

Millions Invested

"The forest industry has invested one and one half million dollars in radio communications equipment in two and one half years. If equipment is available, by next year we will have doubled that figure. Many of our present users admit that use of radio on their operations has paid for itself in less than a year."

What has made two-way radio click in this phenomenal fashion?

The answer is best obtained from one of the many companies which today can't get along without radio and wonders how it ever did.

On July 1, 1949, Weyerhaeuser Timber Company had network installations, partly experimental, at only three branch plant operations, Coos Bay and Springfield in Oregon and Vail-McDonald in Washington.

Forest Network

Today the company uses approximately 175 sets to link twelve Oregon and Washington tree farming and logging operations with an aerial "road" system.

The sets are installed in a wide variety of places: logging headquarters, work camps, log reloading stations and in mobile equipment ranging from pickups and fire trucks to railroad locomotives, tugboats and even airplanes. On land, water or rail, a worker may be out of sight but not out of voice.

Weyerhaeuser's full-time radio engineer, Ellwood Lippincott, tells the documented story of how radio has invaded the logger's ranks to become almost as standardized as the falling saw.

"Two-way radio has won its way honestly by proving its value in protecting loggers' lives, saving timber from fire and stepping up log production. The cost of one installation can be paid off by one fire that's kept small because of prompt crew action," says Lippincott in summing up the record.

Not too many years ago, it would have taken an entire day of rigorous

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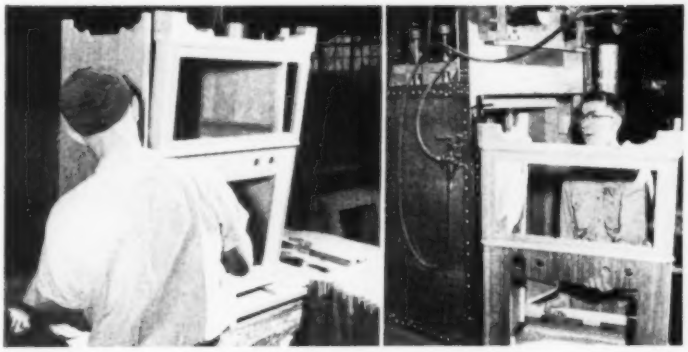
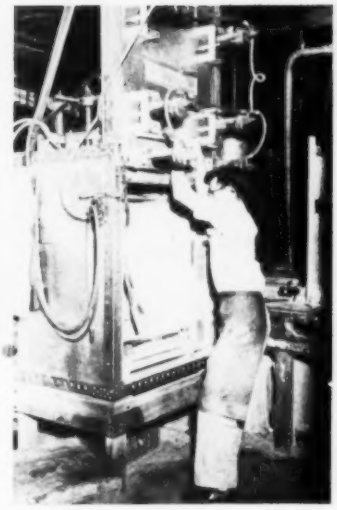


SETTING up cabinet before placing in press; REMOVING completed unit.



PLACING unit in R.F. press.

R. F. Cabinet Pointers

Red Lion Cabinet Co. found that R.F. heating answered many problems only after they had solved a few themselves.

by **RICHARD PETTIGREW**
Personnel Manager
Red Lion Cabinet Co.

Television cabinet production and the use of radio frequency equipment to keep it rolling have gone hand in hand at the Red Lion Cabinet Co., Red Lion, Pennsylvania. Back in 1946, the firm began experimenting with R.F. with two 8 KW generators. In 1950, there were 17 units in operation along Red Lion production lines.

The firm began experimentation with R.F. to edge glue core stock, but this proved uneconomic because of a small percentage of joint failures. Since that time, continuous operation steam presses have been installed and found to be best for the company's core stock lines.

Fortunately, this first experimental use of R.F. did not discourage management. The most difficult problem at the outset was the inexperience of operating personnel and the small amount of technical knowledge available on the subject.

Stray field units for sub-assembly work were the first spots where R.F. proved to be an efficient producer back in 1947. The original 4 K.W. units were sufficiently powerful for sub-assemblies of cabinets then in production.

In 1948, Television entered the picture in volume, and cabinets much larger than heretofore were required; 8 KW generators were then needed to supply additional power requirements. During this same period, presses and jigs were developed which provided the flexibility necessary in handling a wide variety of cabinet models. Flexibility in R.F. heating components from a jigs, fixtures, and set-up standpoint was a must in order to make it economical.

By 1949 the plant was using R.F. on any operation which was considered practical. By this time, it had proved itself the most efficient method of handling sub-assembly work. During this period the first console cabinet was assembled completely by R.F. In 1950, when production hit 12,000 TV cabinets a week, one cabinet model was being turned out at the rate of 1,000 daily on five 2 KW presses. Six 10 KW stray-field presses were employed on sub-assembly; while seven 2 KW and five 5 KW presses turned out assembled cabinets.

Maintenance a Headache

In retrospect, one of the biggest problems overcome during the 1946-Maintenance headaches had to be overcome before any great amount of 1950 period was that of maintenance. R.F. equipment could be installed. The first step was for plant maintenance men to be thoroughly trained in the theory and practice of R.F. heating. Red Lion management is firmly convinced that skilled operators and mechanics are needed to maintain and operate R.F. equipment. During the peak 1950 production periods, a breakdown of any duration would have completely disrupted production. Arcing between electrode was the most frequent trouble spot. In the early stages, this almost always resulted in a complete loss of the platen.

Arcing problems made it necessary for further research and experimentation in developing a platen suitable for stray-field assembly work. After many months of experimentation, a platen was produced which proved to be highly resistent to arcing and capable of long periods of trouble-free production. When arcing did occur, repairs were quickly and easily made.

Custom-Made Presses

All presses for sub-assembly and cabinet assembly work have been designed and built by the Redco Tool division of the Red Lion Cabinet Co. In design, flexibility was kept uppermost in mind. Engineering and model changes in cabinet production occur frequently and the presses had to be adaptable. Now, the only changes that have to be made, in most cases, are to the jig and electrode arrangement. The press and its shielding have been standardized and are easily set into position whenever needed.

R.F. is used to assemble wrap-around cabinets in one operation. To do this, stray-field, through heating, and direct glue line heating were incorporated in one jig.

Positive shielding for these presses was a difficult problem. Flexibility and adaptability were of prime importance. The use of R.F. heating was threatened because of interference with outside T-V and radio reception. With the cooperation of Red Lion's

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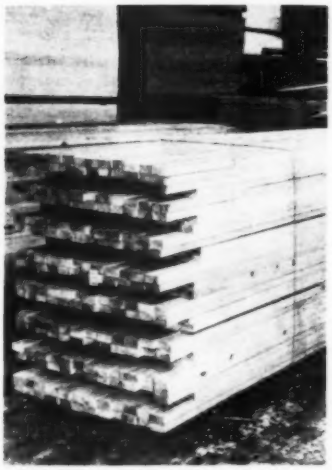
FORK LIFTS and steel strapped bundles are modern efficiency twins.



PACKAGED units of lumber are easy to handle.

Packaged Lumber-Bound to Get There

Three forces are at work to increase the use of steel strap and steel wire in packaged lumber, modern handling tools, the American railroads, and the Armed forces.

by PETER GRANT

The current practice of strapping unit packages of lumber into tight bundles owes its present development to three forces: modern handling methods; efforts of American railroads to improve lumber shipping conditions; and Armed Services shipping specifications.

While unitized methods of lumber handling with the use of mechanized equipment materially reduced handling time and cut handling costs, the speed has sometimes been a disadvantage. There have been many instances of careless handling, with the result that lumber packages were broken up in lifting to strew loose boards about.

The obvious solution was to bind the lumber packages with steel strapping or wire banding so that boards could not work loose.

With the general adoption of unitized lumber handling methods, distributors and re-manufacturing concerns possessing mechanized handling equipment for use in their own yards began to demand that the mills ship their lumber on flat cars to permit them to use this equipment for unloading to reduce their hanling costs.

A shortage of flat cars was soon produced. Gondola cars were substituted in preference to going back to the box cars. The railroads then began to have trouble with lumber shipments made in open top cars. Lumber loads shifted and sometimes worked over the sides to sideswipe passing trains.

The Association of American Railroads arranged a number of joint conferences with the various lumber associations to try to find some solution to this problem.

Advocate Strapped Method

As a direct result of these conferences, the strapped package method was devised and developed into a standard procedure which tied all lumber in the top lift in a solid unit to prevent shifting in transit. This method was not officially adopted, however, until it had been proved practical by numerous shipments. More than 300 test shipments were made from mills of the Pacific Northwest to points throughout the country.

Rules and regulations set up to govern this method of lumber shipments are still undergoing change to suit the requirements of shipper, consignee and carrier. The strapped method of packaging lumber, however, has been universally approved.

There are many complaints still pending. For instance, mills generally objected to the railroads' requirement that outside pieces be at least 12 feet long, or the car be boarded up where outside pieces were shorter, as they felt this was unnecessary where sufficient stakes were used to support the side of the load.

There has been a concerted effort by all concerned to try to standardize the size of lumber packages. This requires a meeting of the minds between shipper and purchaser and involves additional handling, sorting and strapping at the mill. This also means added costs which must either be absorbed by the mill or passed along to the lumber purchaser. Some mills carry the cost of strapped bundling as charge for special service rather than including it in the price of the lumber.

Comparison Tells Story

A comparison of the conventional and packaged method shows an average box car holding about 25,000 bd. ft. of lumber will require about 24 man hours minimum to load or unload with conventional methods. A flat car shipment of a similar amount

LOGS can be strapped for easier loading and handling.

STEEL STRAPPING a bundle of oak flooring.

of lumber can be loaded with strapped packages and secured for shipment in about 3 hours with mechanized handling equipment and can be unloaded in about 1½ hours at destination with similar equipment. It can be unloaded and placed into yard storage in piles in not more than 2¾ hours. Savings in handling time have been known to run as high as 75 per cent, the length of time varying with the kind of handling equipment used.

Segregation of lumber sizes at the mill is one of the prime requirements of the strapped packaging method. Even where complete segregation of sizes is not required, there must be sufficient segregation to permit each lumber package to be strapped into a compact bundle. This penalizes to some extent the large sawmill or planer mill where lumber is normally loaded directly from high-speed machines.

Many mills work to a standard established by military specifications, such as those of the Corps of Engineers, U. S. Army, as follows:

A. Packaged Units (Domestic Shipment)

"The lumber shall be segregated into units containing no more than 2500 MBF of one width and one length, unless otherwise provided, and shall not exceed 4 ft. in width and 4 ft. in height. Each unit shall be strapped with ¾ x .035 or heavier high tension steel strapping or banded with 8 gauge or heavier high tension wire. Two straps or bands are required on units up to 14 ft. in length; 3 on lengths 16 ft. to 22 ft. and 4 on lengths 24 ft. or longer. Packaged lumber shall be shipped via truck or open-top car with packages separated by horizontal spacers 2 in. or thicker."

Carloading practice for lumber shipments on open-top cars usually conforms to recommendations made by the Unit Load of Lumber Task Committee of the NSIA which are:

1. "Bundles should not be any wider than they are high. They should be as large as possible for economy of bundling and unloading. The total width of the bundles should equal the width of the car less each vertical separator to avoid the expense of blocking the bundles to prevent lateral movement. Most efficient width for a bundle is one-third the width of the car, which will permit loading of bundles of lengths under 12 feet in the center of the car. If the bundles are one-half the width of the car, the short lengths have to be nested in 12 feet and longer bundles which detracts from the advantage of complete segregation. Therefore, we recommend that the individual package should be one-third the width of the car. The new proposed rule by the Association of American Railroads will now allow a minimum of 10-foot lengths up against the outside stakes providing they are packaged."

2. "Stakes and separators would consist of or be fabricated from lumber items in the shipment or be sizes which the receiver can utilize, providing they comply with the rules of the Association of American Railroads."

In a typical mill strapped lumber package operation, 4/4 lumber is pulled according to length and width and grade from the sorting chain and built up into unit packages on carrier bolsters with cross separator sticks placed at a height of every 12 pieces. A single unit package of 1 by 12 lumber in 12 ft. lengths will be built up about 4 boards wide and 51 boards high. This package will contain about 204 boards, or about 2448 bd. ft. of lumber. Other packages range from 1 by 8 lumber in 8 ft. lengths of about 306 boards (1632 b.f.m.) packaged 6 pieces wide and 51 pieces high to 2 by 12 lumber in 24 ft. lengths of about 96 boards (4608 b.f.m.) packaged 4 pieces wide and 24 pieces high.

Mill Method Easy

At the strapping area, where all unit packages are carried by straddle lumber carrier, each package is strapped with 2 straps of .035 steel strapping or 8 gauge wire banding per package, placing each strap or band about 3 feet from the end.

The ordinary flat car load is usually about 12 strapped lumber packages which are braced with heavy duty flat steel strapping or wire banding attached to anchor plates fastened to the car flooring and studding.

Some West Coast mills have allowed themselves to be guided by military specifications for export water shipment of lumber similar to the following specifications of the Crops of Engineers, U. S. Army:

A. Packaged Units (Export Shipment)

"The lumber shall be segregated into units containing one width and one length and shall not exceed 2 ft.

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CHOOSE the right adhesive for the job and the job becomes much easier.

What to Consider When Choosing Your Adhesives

Here are some signposts to follow in selecting adhesives for use in production. Built primarily around hot-pressing techniques, this resume is an excellent starting point for better gluing.

by THOMAS D. PERRY

With the development and commercial availability of more and better glues for woodwork the selection of the best glue for any given job has become decidedly complex. Many variables are involved, among them: (1) exposure durability required; (2) production quantities involved; (3) equipment available; (4) can the desired glue be obtained in sufficient quantity to avoid production delays.

The factor of cost per 1,000 square feet of glue joint is usually overemphasized, since a cheap and inadequate glue line is dear at any cost. Furthermore, except in the very cheapest grades of box shook plywood, glue line costs are a very small percentage of total product cost. While this cost factor should not be neglected, nevertheless a sound strong glue line is an excellent insurance policy in favor of customer acceptance. Nothing is more destructive to customer relationships than an inadequate glue joint.

Available Glues

There are about a dozen types of glues available for woodworking operations, above the size of the home work shop and the shop of the hobbiest. Briefly, they are as follows, divided into the newer resin adhesives and the older conventional glues:—

Resin Adhesives

Resorcinol resin adhesives have outstanding advantages in maximum waterproofness, and can be cured at room temperatures, or the cure accelerated and the durability slightly increased by elevated temperatures. They are available only in liquid form, have some storage stability, require a separate catalyst, and are in the higher cost brackets. At the moment, resorcinols are in "tight" supply, due to the wooden ship requirements of our defense effort.

Phenolic resin adhesives also have maximum waterproofness, but except with acid catalysts, require hot pressing. They are available in liquid, powder, and film types, and generally do not require a catalyst in hot pressing. The powder and film types have excellent storage stability under cool, dry conditions. All phenolics fall in the mid-cost brackets. Hot pressed phenolic plywood probably accounts for more than 90 percent of the waterproof plywood on the market.

Resorcinol-phenolic combinations are available in liquid types, and find limited use. They retain most of the desirable resorcinol characteristics and their cost is in the intermediate range between the two types.

Melamine is a special type of urea resin adhesive with a durability approaching that of the resorcinols and phenolics. Since it is in the higher cost range than the standard ureas, its use is limited to special applications where high water resistance is a factor, or where lack of color makes it attractive. Melamine is often combined with standard ureas.

Urea resin adhesives are unusually versatile and can be catalyzed either for room temperature applications or for hot pressing. They are available in liquid or powder form, the latter having excellent storage stability. Compatability with low cost extenders, such as wheat flour, provides a wide range of applications. When used with low ratios of extenders they are in mid-cost brackets while with high extender ratios they approach the glue line costs of the cheaper conventional glues. Low extender ratios have some water resistance but this characteristic diminishes as extender ratios are increased.

Polyvinyl resin emulsions are available mixed ready to use, with excellent storage stability, but with little water resistance. They have a quick "tack", and require short clamping time, but are rather above mid-cost brackets. This factor limits their usefulness in plywood and in some types of edge gluing.

Older Conventional Glues

Animal glues, bone and hide, date back into antiquity, and have established the standards for testing the strength of glue joints. Many woodworkers prize them above all other glues and adhesives. They are available in various cake and granular forms with unlimited storage stability when kept dry. They lay no claim to moisture resistance, but have maximum strength. When joints are protected from moisture they are known to have maintained their strength for centuries. Their preparation requires heating and they are in the mid-cost brackets. Prepared liquid animal glues find limited use.

Casein provide another versatile glue available only in powder form with long storage stability. They are mixed without heat, and have substantial moisture resistance when combined with lime, not over 15 percent, although the higher lime ratios may

develop joints that are a bit abrasive to tool edges. Casein joints, even under conditions of weather exposure, have held their strength for many years. Casein glues are in mid-cost brackets.

Vegetable glues have a starch base, usually cassava or tapioca flour for better quality gluing. They are mixed with caustic, requiring cooking and cooling, but produce a strong joint of long durability when kept dry. Cassava glues are in the low cost brackets, but have a high viscosity and require mechanical spreading. Until the advent of urea resin adhesives, cassava glues were widely used in furniture.

Soybean glues have a protein base and are prepared with caustic, and often with minor ratios of casein. They are particularly adapted to Douglas fir and other softwood plywoods, but are not favored for hardwoods except in the box shook grades. Soybean glues are in the low cost brackets, have excellent storage stability, as well as a moderate degree of moisture resistance.

Blood Albumin glues, or soluble dried blood, were the first of the hot pressed glues, with excellent moisture resistance. Since the advent of resin adhesives, these types of blood glues have found their principle use as extenders.

Packaged glues, retailed at hardware stores in small units, include both casein and ureas in powder form. There are also a number of liquid proprietary glues, the ingredients of which are seldom revealed. These packaged glues are useful in small school, home and hobby shops, but cost differentials usually bar them from larger industrial applications.

Glue Selection

The selection of the glue to be used in any job may be limited by production quantities, by existing factory equipment and by market availability. In order to make these factors clear in an understandable classification, the major break down will be by volume production requirements: (1) grouped as factories turning out over 10,000 sq. ft. of plywood per day; (2) approximately 5,000 per day; and (3) shops producing less than 1,000; followed by suggestions for (4) laminated timbers and (5) assembly gluing. Further distinctions will be made according to moisture resistance requirements, with brief mention of equipment needed.

It is obvious that only general rules can be laid down, since workmanship, knowledge of utilization, and expediency may modify the choice. Other authorities may differ with the author, as many factors and variables complicate the situation, but the suggestions made are believed to be fair and conservative.

Plywood, 10,000 Sq. Ft. per Day and Up

In general, this classification will include most plywood makers, as well as some of the larger manufacturers of furniture, cabinets, doors and trim plywood. The requirements may range from 500 lbs. of extendable urea adhesives to 1,000 lbs. of conventional glues both of which would be increased, correspondingly, with larger daily output. This volume of plywood will justify the use of 10-opening hot presses, with temperatures ranging up to 300° F.

For commercial work, stock panels, furniture and interior trim plywood, mostly hardwoods, *where water resistance is relatively unimportant*, hot pressed urea resin adhesives are suitable, up to equal parts of glue solids and extenders. For better water resistance, (of extended ureas), the glue/extender ratio may be three/one or four/one. In Douglas fir and other softwood plywood, the suggestions would be soybean, which may be hot pressed to speed up production.

In the case of marine, aircraft and weatherproof plywood, with maximum water resistance, in hardwoods, the options would be phenolics, melamines and fortified ureas, all made in hot presses. In Douglas fir and softwoods, the choice would probably be straight phenolics hot pressed. For aircraft and marine plywood, the phenolic film, *Tego*, has been found very convenient and suitable, since it does not require mixing and spreading, and has a minimum of "strike-through" in very thin veneers, after hot pressing.

If hot presses are not available, the choice for minimum water resistance, in hardwoods would fall on *cassava for the cheapest glue line*. For medium water resistance it would be urea resins in a two/one ratio of glue/extender, or casein, both progressively higher in cost. In softwoods, the choice would remain soybean.

The choice for box shook plywood would range from vegetable (starch) glues in the cheaper grades, cold pressed, to highly extended ureas, hot pressed. Plywood for overseas containers might require the glues indicated above for marine plywood.

Spreader requirements would be grooved rubber rollers for the resin adhesives and more coarsely grooved

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Hot Pond Pays Idaho Logger

Bob Forbes found another hot pond system which keeps the logs workable in spite of freezing weather.

The sizable sawmill of Brown's Tie and Lumber Company—approximately 15,000,000 bd. ft. of lumber and 100,000 ties per year—has been limited to 10 months of operation at most annually since its founding. However, a new and inexpensive method of maintaining a "hot" pond in its immediate corner of Payette Lake at mile-high McCall, Idaho, appears to have the problem of logs frozen tight licked and future operations can be put on a 12-month-year basis.

The new "hot" pond idea of partner Warren Brown was not perfected until February, 1951, but kept the mill bull-chain and head saw going full blast after that time.

Brown's scheme makes use of the fact that water at the bottom of a lake or deep pond is slightly warmer than that at its surface. It also uses a more or less continual supply of air bubbles to mix water of the two strata. This is done by laying iron pipe on the lake's bottom for 200 yards in three different directions from the end of a dock running out into the log-storage pond.

The one-inch pipes were pierced with a 1/32-inch hole each 50-feet of their length and hitched to a 105-cu.-ft. Ingersoll-Rand air compressor. The resulting stream of bubbles coming from the pipes kept the pond ice free.

But still logs were frozen stiff as they traveled into the mill. So, for two hours before the trip up the bull chain, logs last winter were subjected to live steam coming from a 10-inch pipe mounted in an enclosed float.

It is anticipated that a 210-cu.-ft. compressor will furnish air in the winter of 1951-52. Otherwise, the same system will be in use, probably with good results.

A LADDER-CLAMPING assembly made up with a battery of air cylinders

Ladders in the Making

Modern production methods have speeded up the manufacture of one of wood's biggest specialty items. Here are some machining and fabricating tips to aid ladder men.

by JOHN E. HYLER

Ladders are made from various woods, the chief requisite being strength. Some are made from magnolia. Rock elm has been used in their manufacture. Ladders of the rolling type are often made of hard maple. Hemlock has been used for ladder beams. Selected Douglas fir has been used for long ladders. Spruce may be considered the material *most* employed for ladder beams, because it combines strength and light weight.

Hickory Rungs

Ladders with spruce or fir beams usually have ash or hickory rungs. Because human safety depends directly on the strength of ladder rungs, some have used a second growth hickory, and many have used split billets for the production of rungs. Where split billets are employed, there can be no question about the grain being straight, and strong.

Ladder beams may be given a strength test to insure against crossed grain by flexing them, and in some places this is done. One end of the sawn beam is placed in a slot, and the beam bent by placing leverage on its other end. If it stands a reasonable bending test it is sufficiently strong. If it breaks, material can still be salvaged for less exacting uses.

Four-Inch Molder Best

A four-inch molder is used for surfacing the beams on four sides and easing all four corners. Properly eased corners are important because they prevent any peeling of sharp corners on fir or spruce, and are easy on the hands of the ladder user. Cutterheads suitable for making easing cuts together with surfacing operations are now available.

Gang boring machines are used for boring ladder beams, for they allow all holes in a beam to be bored at one pass, and insure perfect spacing of holes on each ladder beam. Some machines will bore all holes in ladder beams up to 20 feet in length.

It is possible to use dowel rod stock for ladder rungs, but in many instances special lathes are used for high production. Some turning machines are automatic and pick up the blank and feed it to the cutters. One roughing revolution is made, and the unit feeds the blank in a little further and makes a finishing revolution. The rung is then dropped out from between lathe centers and another blank is picked up. One operator can feed several lathes of this kind at once.

Chucking and Assembling

Ladder rungs often go to a chucking machine, and are then taken to special assembly racks. There is a difference in the length of rungs being used, to provide necessary flare at the bottom end of ladders, and use of a number of assembly racks provides means for keeping the different lengths in their own racks and thus automatically segregated. When a ladder beam is placed on the assembly bench in front of these racks, each of the holes in the beam is in positional registration with the rack containing the particular length of rung with which it should be fitted. After the rungs are all in place, the partial assembly is dropped down to a convenient level and the other bored ladder beam placed on top and driven into place. The ladder then goes to the clamp.

Ladder clamps properly squeeze a full ladder assembly tightly together, while nails are driven through one edge of the beams and on through the ladder rungs. Air-powered clamps have proven to be especially convenient for this purpose.

Stepladders have often been adopted as a sideline where short pieces of lumber are left over from other operations. Usually the extreme top step is the only piece in a stepladder having a width of more than four inches. Therefore, a four-inch molder is well adapted for machining stepladder parts.

In the manufacture of stepladders of A-frame type, some use a special gang boring machine with auxiliary equipment for holding the ladder sides at an angle equal to half of the "flare" which will be incorporated in the assembly. While holding the ladder side inclined, bits advance from both top and bottom. In addition to the series of boring machine spindles, there is an underneath unit which advances bits straight upward to engage the stock. In this way, the top spindles bore for rungs while the lower spindles bore for hardware application.

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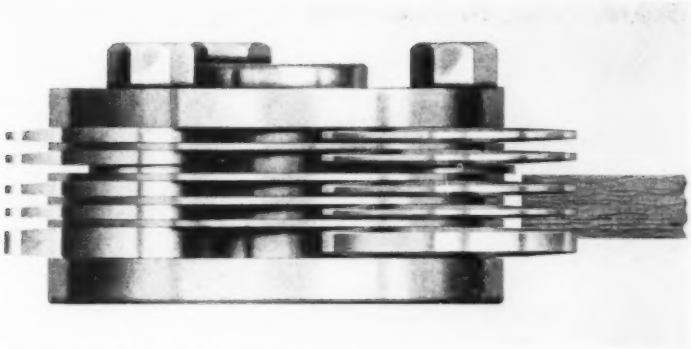


FIG. 1. How stock is cut by the finger joint head.

Utilizing Short Lengths

Door plants are using special finger joint heads to stretch lumber supply. Here's what production tests show.

by JAMES TOMPKINS
Wisconsin Knife Works

Back in the "Roaring Twenties" when automobile bodies used wooden frames, a cutter head known as the "Badger" finger joint head was developed for jointing pieces of stock of special shapes so that the wood frame could be put together as one piece. This head made a very strong joint and was used extensively. These were usually four or six-in. long heads and were made with 12 to 14-in. swing. They were usually run on a special machine.

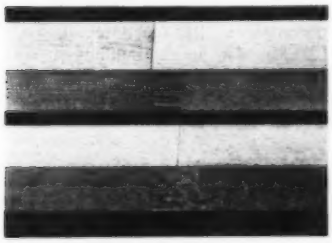


FIG. 2. Top—before gluing; Bottom—after gluing.

In 1941 when the second World War came along, many materials, even wood, were subject to restrictions. There was a definite need to save all material possible and many sash, door and millwork manufacturers found it expedient to save short pieces. This brought about the revival of the finger joint head. The need was for a smaller head than used in the automotive trade. Also, since some of the joint would be exposed, it was essential that the head be refined a bit so that a perfect fitting joint would result. Some slight revision in design was made so that the joint was made reversible. This was deemed advisable as most sash and doors are made of dressed stock and the only finishing done, except on the edges, is sanding. Because in the body industry the head was mostly used on a special machine, several experiments were conducted to find the ideal machine for the head to fill its need in the industry for "stretching lumber". Experiment proved the double end tenoner as the best machine.

On the tenoner, one head or two heads may be used. If the stock is rather uniform in length, both cope spindles may be used, and, by adjusting the heads, the joint remains reversible. Several pieces may then be joined together. If stock is random length, one cope spindle is used. Only the cutoff saw and cope spindles are used. If stock is dressed before jointing, uniform joints can be obtained. If rough stock is used, good joints are not as easily made.

Most cope motors are 5-7½ H. P. or more and this is sufficient power for the head. If the rubber holddown chain is rather tight, the stock will ride by the head and not beat back. Some set-ups have been made for shapers but this is not too good practice. Stock must be held straight and the cut is not an easy cut to hand feed. The tenoner is ideal as the cut off saw squares the end before the cut is made. This will assure a perfect fitting joint.

Figure 1. shows a piece of stock as cut by the head. You will notice that the bottom cutter is thicker than the others in each pile. This is done so that any size stock can be run and a reversible joint result. You can also note an additional spacer between the third and fourth row of cutters. This is a "U" washer or a horseshoe washer that is set between the rows of cutters when the step is more than ⅛" to keep the joint reversible. These are inserted by loosening the nuts clamping the rows of cutters together, lifting up the cutters and inserting the horseshoe washer and turning same so the opening is out. This will do away with any danger of the washer flying out and then retighten the nuts holding the head securely together.

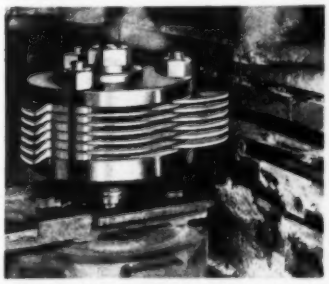


FIG. 3. COPE SPINDLE and the head.

The head can be sharpened on a regular cutter head grinder by grinding the face in the same manner as sharpening milled to pattern bits. The circular bits are hollow ground on the taper portion so they will cut a perfect taper and the joint will slide together easily. It is very important that the joint fit perfectly as much of the material is glued up by the electronic process and any opening will arc and burn badly.

Much experimenting with various glues has taken place. First experiments used a waterproof glue which was quite dark in color and this was objectionable because of the color. Further experimentation brought out a very light colored waterproof glue; usually the melamine type has proven very successful as it is a waterproof resin type glue of satisfactory color and bond.

After making weathering tests and breakage tests to prove the strength of the joint, many firms now unconditionally guarantee their stock as used in sash, doors, casings, jambs and the like.

Some manufacturers are running screen door stiles from this glued up stock and saving the screen mould

(Continued on page 69)

MODERN SAW SHARPENING equipment still takes an intelligent hand to use.

Training Sharpening Experts

There's a great hue and cry about saw and knife sharpening experts being a vanishing race. Something can be done about it, and Paul Graham shows the trials and errors of some who have ultimately been very successful.

by PAUL GRAHAM

While there is no universal method for the fitting of saw and machine knives, all methods may be boiled down to certain fundamentals which can be learned and adapted to suit individual plant conditions.

Since saw and knife fitting practices must necessarily differ in various plants, differences of opinion are bound to arise. Maintenance equipment will also vary in kind and efficiency between plants.

Modern production plant requirements leave little room for the old, slow, non-uniform and laborious hand methods of saw and knife fitting. Basically the qualifications of the saw and knife fitting experts are still much the same as they have always been.

The real expert must first understand how each cutting tool is expected to perform on the machine, how it should be mounted, and what its performance capacity is. He must know how each tool is made and of what material. Finally, he must be able to detect and identify all faults and have the knowledge and skill needed to apply the remedy required.

If we heed the hue and cry of the woodworking industry, the old timers are dying off and there are no replacements. The obvious solution is an intelligent training program to develop these saw and knife fitting experts.

Quality Not Quantity

The trainee should be quality-minded rather than production-minded. He should have patience and intestinal fortitude. A natural affinity for cutting tools is required and a mechanical sense is a good asset. Good eyesight and coordination are prime requirements. Saw and knife fitting proved to be one of the trades well suited for disabled veterans, where operations could be selected to suit a particular form of disability.

The trainee need not be young but he should not be so old that his working life expectancy will be insufficient to compensate the training investment involved. A knowledge of modern shop practice and cutting characteristics of the various wood species is most valuable.

Too few men in saw and knife maintenance departments today have sufficient knowledge of how the cutting tools they service are made, or what materials are used in their manufacture. The ideal training would permit trainees to visit plants of the various cutting tool suppliers to study first hand all phases of tool manufacture. Leading tool makers are quite willing to cooperate in such a program.

An alternate measure available to all is a well planned course of study, starting with the manufacture of tool steel and continuing with the processes used in cutting tool manufacture. The trainee who is backed with comprehensive knowledge of this sort will have the know-why as well as the know-how and is therefore better fitted to do a good job.

Almost Automatic

Modern automatic equipment now in general use is provided with mechanical setting devices and automatic feeds. It is only necessary for the trainee to learn proper set-up practice and maintenance of equipment and the proper grit and shape of grinding wheel or kind of file. Once set-up with the proper equipment, most automatic machines will handle the balance of the operation.

It is important that the trainee know just what he is trying to do before operating a machine. Tooth shapes and cutting bevels vary. Different types of cutting tools will require different fitting practices. If successful standards have been established through experience in the department, all that is actually required is to drill the trainee in basic fundamentals and individual applications.

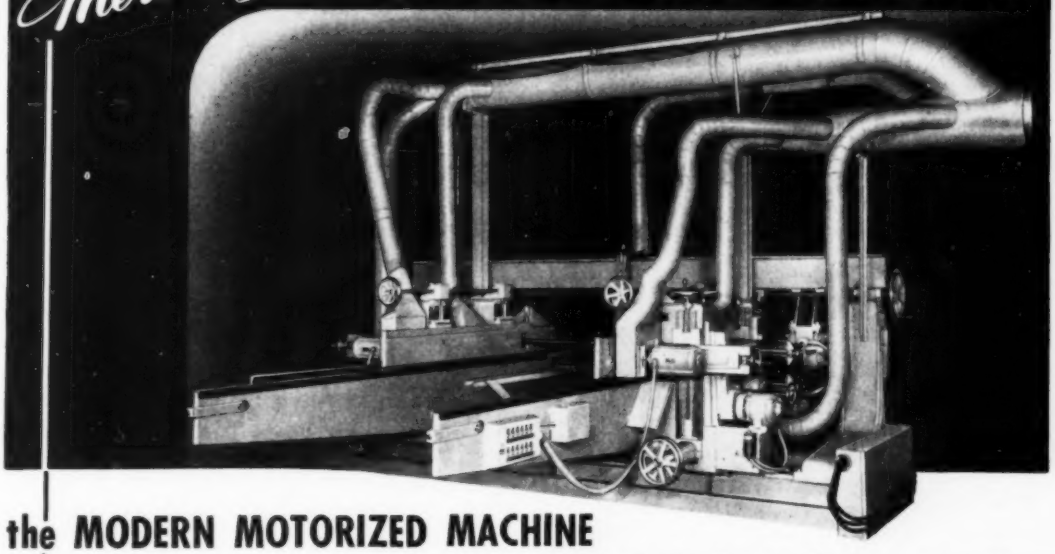
Machine knife manufacturers and saw makers have prepared considerable organized data on cutting bevels and tooth shapes that may be used to good advantage in a training program. Illustrated applications are usually specific enough to provide the trainee with a good foundation.

Modern saw and knife maintenance departments operate much the same as the manufacturing departments. Best results seem to come from training specialists in various branches of cutting tool maintenance. There will be an occasional trainee who will excel in all phases of tool maintenance. He should get the works as he will probably be the next department head.

Straight knife grinding and general saw fitting will seldom require extraordinary skill where modern equipment is used. There are, however, a number of operations which require special skills. Saw hammering for tension is one of these. Carbide-tipped cutting tool grinding is another operation calling for special

(Continued on page 46)

Mereen-Johnson DOUBLE-END TENONER



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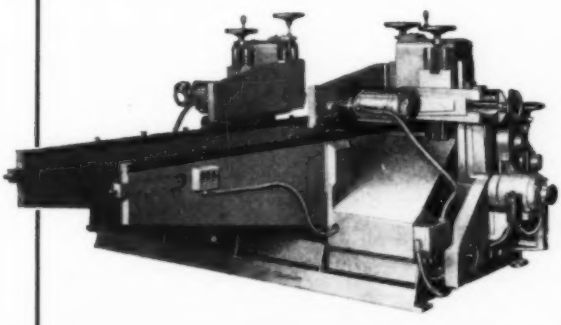

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(Continued from page 44)

equipment and skill. The best training medium for these specialized skill jobs is a course at the manufacturer's plant.

Modern saw and knife maintenance departments are now equipped with special precision grinders which make hand work unnecessary. One department head has stated he can train a mechanically-inclined man to do a precision job on one of these grinders in just one week.

One of the first things is to teach the trainee to have proper respect for the tools and equipment he uses. He will readily understand the need for accurate machine adjustment and lubrication but will have a tendency to neglect working parts that are critical, such as stretcher rolls, and feed fingers unless their importance is forcibly brought to his attention.

Once he has absorbed fundamentals and the required amount of theory, the trainee can be further developed only by actually doing the work. Operations that he performs during his early apprenticeship will provide a means for evaluating his special skill and should indicate the course of the balance of his training as a specialist.

The following treats with a training program used in a large furniture plant to show how such a program works.

After a visiting service engineer from a leading saw and knife manufacturer had repeatedly criticised their saw and knife maintenance department, management of this furniture plant gave him the job. At the time this engineer took the department over most of the equipment was worn or obsolete and the entire department was poorly arranged and in a general state of confusion. All of this equipment was gone over thoroughly, obsolete machines were scrapped, and modern automatic equipment was installed in an orderly efficient arrangement.

Strict Setup

Some of the older employees refused to change their methods. These were discharged forthwith. Those remaining pledged their wholehearted cooperation and were gradually assigned jobs where their natural skills could be best utilized. The department was still undermanned and management quickly subscribed to a training program presented to them by the department head as a means for recruiting suitable help.

Foremen from each of the machine departments were asked to select men from their departments who might be trained as saw and knife fitting experts, based upon natural skill and cutting tool know-how. These men were contacted with a proposal that they attend a series of lectures to be given by the saw and knife maintenance head after working hours. As an added incentive to attendance they were offered half-pay during this session.

Lecture Series

This course consisted of a series of lectures upon steel and its use in the manufacture of cutting tools. The experience and specialized knowledge of the former service engineer enabled him to make a very practical down-to-earth presentation. Motion pictures supplied by a steel concern were used to supplement the steel lectures. Cutting tools in various stages of manufacture were also borrowed from a saw and knife manufacturer to illustrate tool manufacture procedure. Various types of finished cutting tools were also demonstrated with a detailed explanation of their use and application in production op-

(Continued on page 48)

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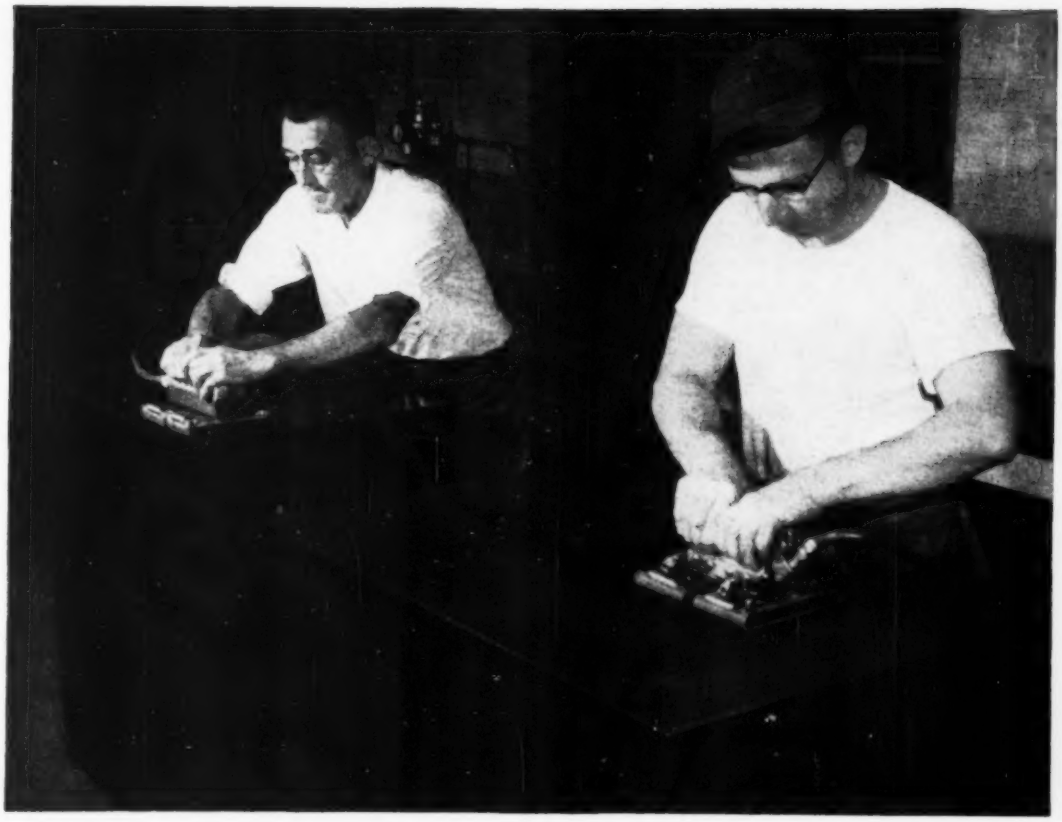

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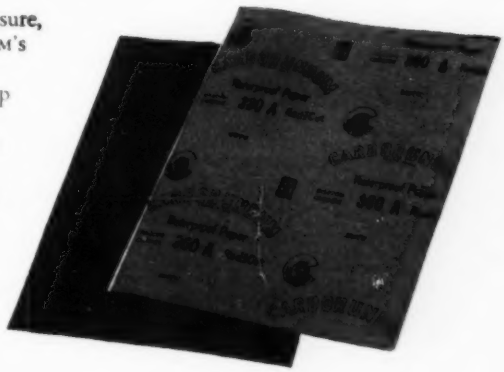

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(Continued from page 46)

erations.

Fifteen men finished this course but ten were eliminated by examinations given at the end. The five remaining men were sent, at company expense, on a conducted tour of different tool plants which made cutting tools used at this furniture plant. Upon their return from this trip, all were required to submit a written report of what they had learned. Three men finally entered the saw and knife maintenance department for further training.

These men were rotated at different machines with different operators until every machine in the department had been operated. The regular operators were required to report on the trainees' ability and interest. One more man was eliminated for lack of sufficient interest. The two remaining trainees were then taken in hand by the department head for personal instruction.

The unsatisfactory results obtained led to the development and adoption of the plan now in effect which is based primarily upon employee application. When the need for extra saw and knife maintenance help is anticipated, a call for applicants is posted on the plant bulletin board. Any employee may register for the course. The list of registrants is gone over with each foreman for his recommendation and a simple examination is given to all applicants to weed out curiosity seekers. A local trade school which sponsors a woodworking course also recommends outstanding students who are also put through this preliminary screening process.

Some of the saw and knife fitting trainees in this plant never get beyond certain machines. Where a natural aptitude is shown for an operation and extra help is needed, the man is immediately assigned to that machine.

Wages paid in this department are at top level so that jobs offered are very attractive to men in the shop. Foremen have complained they were losing superior machine operators because of the better rate of pay. Thus far, management has stuck to its guns contending this is the most important department in the plant.

Manufacturers of cutting tools and maintenance equipment are invited to show new developments and tools to all members of this department and all are consulted before a final selection is made. Cooperative spirit has been developed to a surprising degree and personal ingenuity and initiative is promptly rewarded. All experiments must be carried on at the man's own time and with the consent of the department head.

Steady Source

This plan has provided a steady source of skilled labor for this department. This saw and knife maintenance department operates under strict budget control and some outside offers cannot be met by normal wage increases. An attempt is being made to combat this problem by having trainees sign up for a prescribed period that will guarantee a reasonable return on the investment.

Saw and knife fitting is an exact science and requires the services of experts operating modern precision equipment for best results. Instead of bewailing the fact that these experts are currently becoming more scarce, it behooves the woodworking industry to try to keep up with the ever-increasing demands of production departments by training their own experts in modern saw and knife fitting practice.

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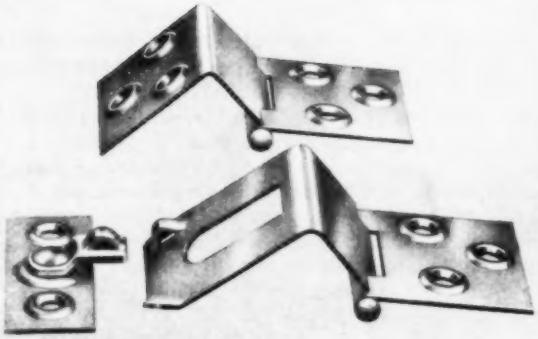

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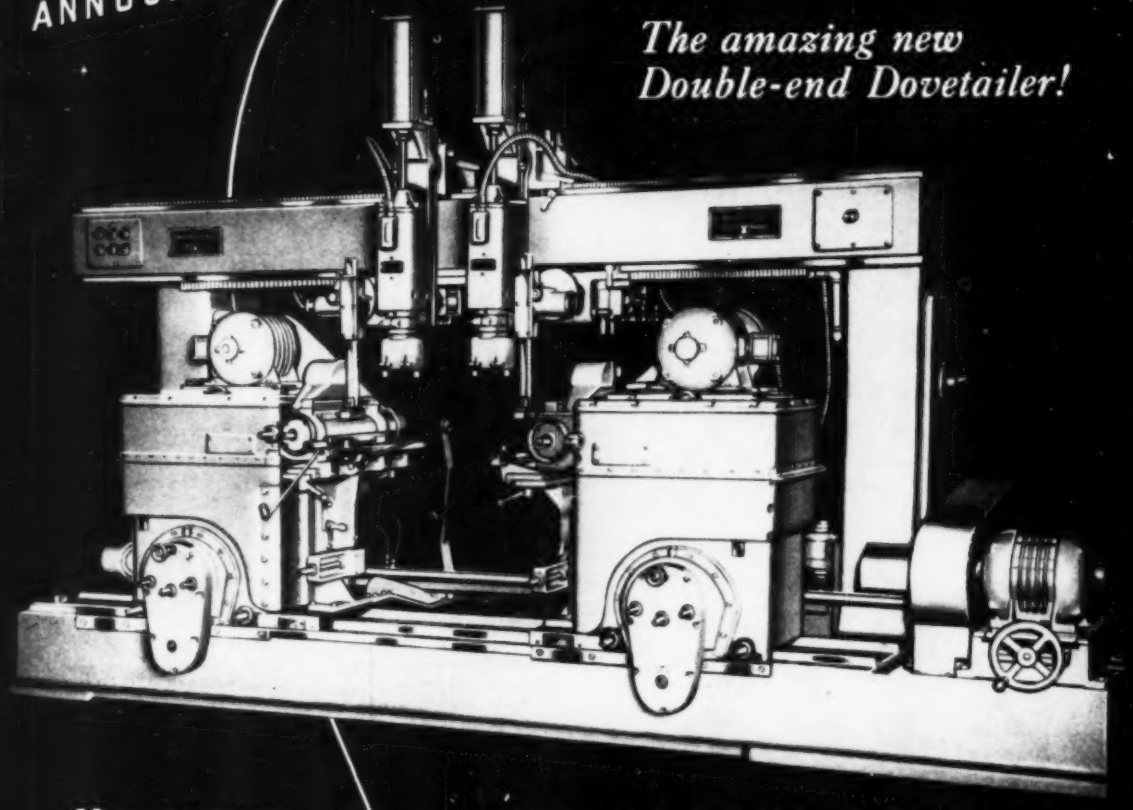

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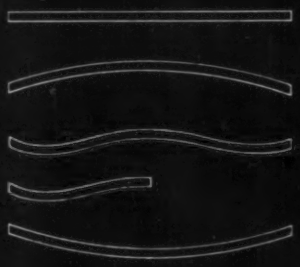

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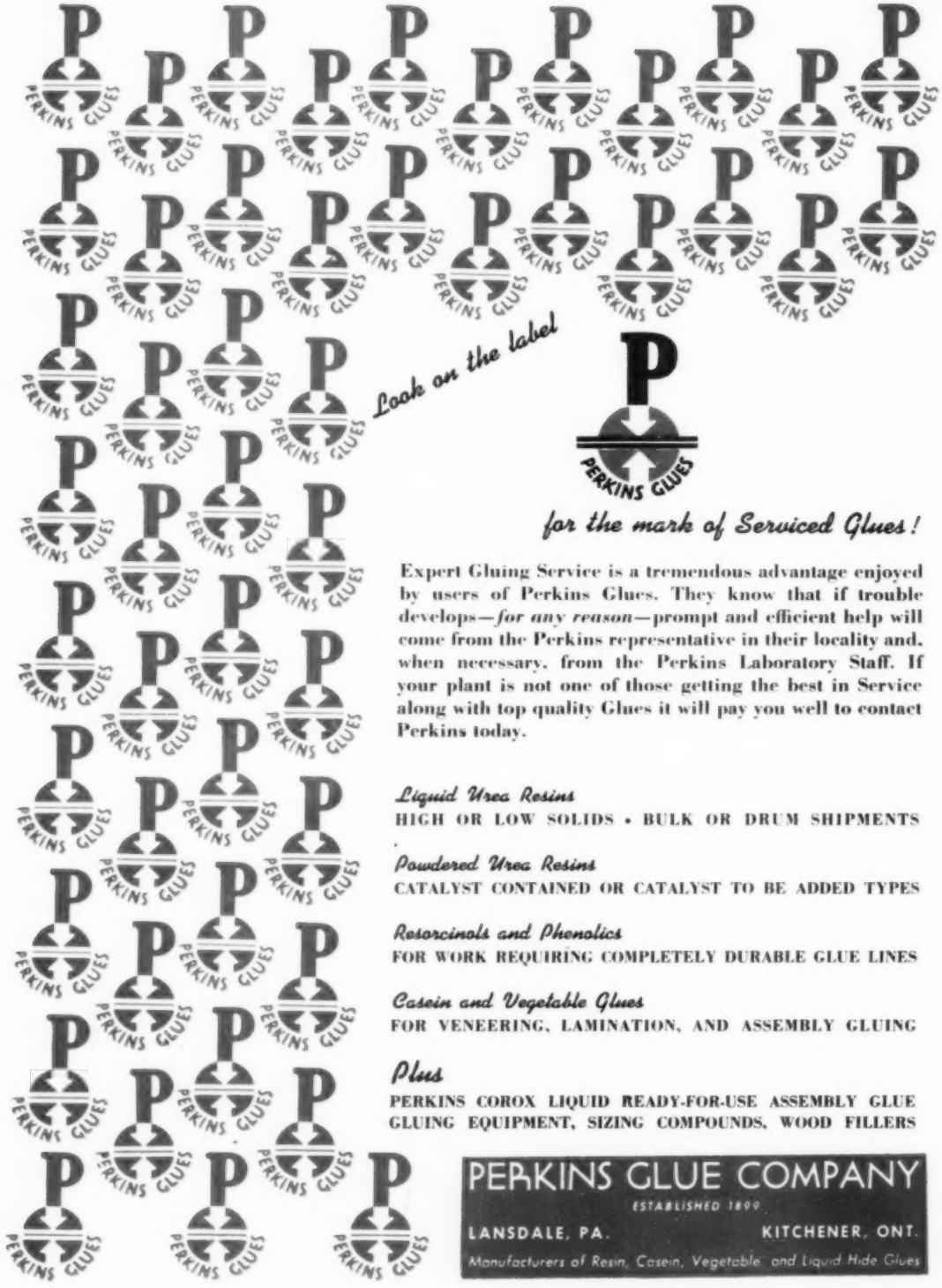

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F.P.R.S. Monthly Bulletin

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by FRANK J. ROVSEK, Executive Secretary, P. O. BOX 2010, UNIV. STA., MADISON 5, WISC., NOVEMBER, 1951

New Upper Mississippi Valley Section Meets At St. Paul Nov. 30

Forest Products Authorities Headline Meeting at U. of Minnesota

J. A. Hall, U.S. Forest Products Lab.

Dr. J. Alfred Hall, director of the world's largest laboratory devoted to the study of wood, and the greater utilization of forest resources, is an interesting, down-to-earth, and dynamic speaker of outstanding quali-

(Continued on page 52)

F. H. Kaufert, U. of Minnesota

Dr. Frank H. Kaufert is the director of the School of Forestry, University of Minnesota, in charge of teaching and research projects. He is an alumnus of Minnesota, having received all of his degrees there. In

(Continued on page 52)

Final program details are being ironed out for the first full-fledged FPRS meeting scheduled for this area. Upwards of 100 members and other interested wood management and technical persons from Minnesota, the Dakotas, Canada, Upper Michigan and Wisconsin are expected to be on hand at Green Hall University of Minnesota at St. Paul as the program gets underway at 10:00 A.M., Friday, November 30.

The purpose of this first meeting is two-fold: first, to present papers and develop discussion on Packaging, Housing, Minnesota Wood Resources, and the work of the U. S. Forest Products Laboratory, relating to the problems and scope of local wood industries and second, to elect a slate of officers to lead future activities of the new Section, whose hub will be the Twin Cities.

The program is under the direction of Arthur Lahey, Weyerhaeuser Sales Co., St. Paul; assisted by Arthur Larkin, Republic Creosoting Co.; Dr. Frank Kaufert, School of Forestry, U. of Minnesota; and Ortie LaVoy also of Weyerhaeuser.

Program

10 A.M., FPRS Business meeting. Election and seating of new officers. "Objectives and Activities of FPRS", *Frank J. Rovsek*, executive secretary. "Lumber Packaging", *James E. Stewart*, G. M. Stewart Lumber Co., Minneapolis.

"Minnesota's Forest Resources and Forest Products Industries, "*F. H. Kaufert*, Director, School Forestry, U. of Minn. Luncheon, in Party Dining Room of St. Paul Campus cafeteria.

2 P.M.—"Effect of Condensation in Houses on the Performance of Building Materials," by *C. E. Lund and M. L. Erickson*, U. of Minn. "Developments in Use of Lumber in Window Manufacture", *Earl Swanson*, Anderson Corp., Bayport, Minn. "Lumber in Laminated Products," *M. C. Neel*, Rilco Laminated Products, St. Paul.

"Some Characteristics of Young Plan-

(Continued on page 54)

F.P.R.S. Executive Board Holds Two-Day Meeting in Milwaukee, Wis., Sept. 17,18

All officers and regional board members of the Society, with the exception of Moss Christian, Tallulah, Louisiana, whose son was taken ill, met to discuss national problems at Milwaukee recently.

A principal reason for meeting here, of course, was to view facilities and go over the organization of the 1952 National Annual Meeting to be held here June 23, 24, 25, 1952.

Of some thirty-one separate items covered in the agenda, during the two days and nights, following are some of the actions observed. It was recommended that the section organizations, either directly with the national office, or through their regional board members, inform the national on future meeting arrangements at the earliest possible dates to enable widest publicity assistance from Madison.

The secretary is to begin compiling a "Section Officers Manual" for their aid in conducting meetings, developing membership drives, etc.

There is much interest being shown in possible coordination of meetings by related technical societies. For example, it may be feasible and practical for FPRS sections to plan meetings in cooperation with other groups in the interest of greater attendance and economy. The secretary will proceed to investigate possibilities along this line with FPRS' eleven sections.

Ralph Bescher, general chairman of the 1952 Meeting, outlined general

(Continued on page 52)

J. A. Hall

(Continued from page 51)

fications for his subject. A native of Indiana, alumnus of the University of Minnesota, specialist in the field of biochemistry, Dr. Hall recently resigned his post as director of the Pacific Northwest Forest and Range Experiment Station to head up the myriad activities of the U. S. Forest Products Laboratory, at Madison, Wisconsin.

F. H. Kaufert

(Continued from page 51)

1931 he undertook special study at the University of Halle, Halle A. Saele, Germany. He has served with both private industry (the DuPont Chemical Company in the late thirties) and with the U. S. Forest Service. During the last war he was assigned to special work in the U. S. Forest Products Laboratory, Madison. He is an excellent speaker, and author of some 50 assorted papers and bulletins in the field of forest products. He is a Council member of the S.A.F. and former Chairman of Publications for F.P.R.S.

DEEP SOUTH SECTION TO MEET AT SHREVEPORT NOVEMBER 23 and 24

The third annual meeting of the Deep South section will be held at the Washington-Youree Hotel, Shreveport, La., starting 9 A.M. Nov. 23 and concluding 11:15 A.M. Nov. 24.

Program

"Recent Investigation on the Control of Decay in Wood Buildings," *Dr. A. F. Verrall*, Pathologist, U. S. Dept. of Agriculture, Gulfport, Miss.

"Forest Management and Delta Hardwoods," *L. C. White*, Forester, Chicago Mill and Lumber Co., Tallulah, La.

"Development of Utilization of Louisiana Delta Hardwoods," *Meredith Feters*, State Forester, Soil Conservation Service, Alexandria, La.

"Genetic Approach for Improving Wood Qualities of the Southern Pines," *Dr. Bruce Zobel*, Texas Forest Service, College Station, Texas.

"Modern Gluing Techniques", *J. F. Haskins*, District Mgr., the Borden Co., Jackson, Miss.

"A New Method for the Preservative Treatment of Fence Posts", *Richard F. West*, Asst. Professor of Forestry, Louisiana State U., Baton Rouge.

Several additional papers on related wood products subjects are being secured.

The Louisiana State-Villanova football game will be played at the Shreveport Fair Grounds stadium at 2:30 P.M. Nov. 24, and, if still available, tickets may be secured through the secretary of the section, below.

Non-members as well as members of FPRS are invited and encouraged to attend this and any other FPRS meetings held near their homes or area of business.

Advance registration or further details may be had by writing, *Richard K. Speaires, Jr.*, Centenary College, Shreveport, La.

Executive Board Meeting

(Continued from page 51)

plans, committees etc. for the event next June. Official releases will be made soon by a special publicity committee created for this function.

Considerable discussion was held on the subjects of 1953 and subsequent FPRS National Meetings, and also Industry Shows. More will be reported later.

R. Pauley, national membership chairman, outlined plans for securing 400 new voting and associate classes of members during the remaining 1951 fiscal year.

FPRS publications policy was thoroughly reviewed and, in view of the multiplicity of media currently being used by the Society for official business and papers it was decided to obtain a poll of member opinion before continuance or change of the present program was considered.

President Carter is in the process of selecting a five-man special committee who in turn will select candidates for the National Nominating Committee. This committee, when organized, will undertake responsibility for placing before the members potential national officers of the Society. The president is also reviewing possible candidates for North Central and Southwest regional nominating committees. These committees will nominate candidates for regional board members.

Fred Armbruster was named General Chairman of the Subject Matter Committees, which are being activated in fields of education, wood drying, packaging.

The National Executive Board will meet again March 11 and 12 in Milwaukee.

New Officers Elected At Fla.-Ga.-Ala. Meeting

VALDOSTA, GA. Oct. 6—At the concluding business meeting new officers for the 1951-52 term were elected.

Chairman—*Wilbur B. DeVall*, Head, Forestry Dept., Alabama Polytechnic Institute, Auburn. Vice-Chairman, *M. E. Ryberg*, Southeastern Forest Exp. Station, Gainesville, Fla. Secretary-Treasurer—Dean Boyd Richards, Alabama Polytechnic.

Trustees—*Baker McCranie*, McCranie Bros., Willacoochee, Ga.; *B. E. Anderson*, the Gavan Corp., Atlanta; and *H. Langdale Jr.* Langdale Timber Co., Valdosta.

Midwest Meeting

OSHKOSH, WIS. Sept. 19, 20 and 21—Over 200 FPRS members and guests registered for the three-day meeting covering both production and technical aspects of millwork, furniture and plywood and veneer. An innovation by the section, holding daytime sessions in a local theatre and evening sessions at the hotel, proved highly successful in developing high attendance at each session. The meeting was heralded as being nation-wide in scope as the parent organization, with speakers represented on the program from such distant points as Maine and Idaho.

J. A. Hall Principal Speaker

Dr. J. Alfred Hall, director of the U. S. Forest Products Laboratory at Madison, Wisconsin, was the main luncheon speaker. Hall emphasized, "Our laboratory is designed to help producers of wood materials. The unifying force of FPRS is that you are all working with wood. Well, that is what our organization is doing too. We are all working together toward a common goal."

The main goal of the U. S. Forest Products Laboratory is "to see the good usage of our forests." In describing his laboratory's service, Dr. Hall outlined its three functions: the study of wood in its basic form; work on modified wood; and research into chemical uses of wood. Fundamentals of sawing are an example of the first function. The main purpose of studying this early step of wood usage is to seek means of reducing wastage. Dr. Hall emphasized, "We've got to utilize the wood we can get."

Discoveries of new uses for wood in changed form such as laminated wood has prompted the Laboratory into an entire new field of study. The use of second-growth timber has also

Midwest Section Continues Leadership with Oshkosh Meet

AT OSHKOSH, seated l. to r. K. R. Brown, Sherwin-Williams; F. F. Beil retiring Midwest chairman; C. J. Binner, Morgan Co.; T. C. Mann, Ekstrom, Carlson Co.; J. S. Tompkins, Wisconsin Knife; Phillip Reinmuth, Potlatch Forests, Inc.; standing, Robert Nelson, Sundstrand; Robert Hiller, American Cyanamid; and Ralph Casselman, Paine Lumber Co.

GEORGE W. STANLEY, JR., newly elected chairman of the Midwest section. In his regular work, George is in charge of all engineering for the Unicel plywood freight car.

L. TO R.—Forrest F. Beil, Curtis Co., Clinton, Iowa; Langdon Quimby, Allen Quimby Co.; Phil Reinmuth; M. C. McIver, Penokee Veneer Co.

NATIONAL OFFICERS, GUEST SPEAKER. L. to r., L. J. Carr, L. J. Carr and Associates; Pres. Roy M. Carter, N. C. State College; Dr. J. A. Hall; Ralph H. Bescher, Koppers Co.

led to studies of that form after years had been directed to studying virgin timber usage. In the wood chemistry field the consumption of pulp and fiber wood products has grown to the point where 380 pounds of fiber products are made for each person in the U. S. every year—almost as much as wood consumption on a per-capita basis.

Carbide Tool Dinner

Preceding the official opening of the meeting was a dinner and round table discussion, Tuesday evening, on the use of carbide wood-cutting tools. Thirty-four members of machinery manufacturers, carbide tool manufacturers, wood industries publications, and technical experts were guests of the Firth Sterling Steel and Carbide Corporation of Pittsburgh.

Surprise Visit of National Officers Made

Roy M. Carter, president; Kenneth G. Chesley, president-elect; Northcentral Region Board Member, Ralph Bescher; Southwest Board Member, L. J. Carr; and Frank J. Rovsek, Executive Secretary were in attendance on Thursday and Friday, coming directly from their Executive Board Meeting in Milwaukee, Wis.

New Officers Elected

New officers for the 1951-52 term were elected. Chairman, George Stanley, Jr., Pressed Steel Car Co., (Plywood Division) Chicago; Vice-Chairman, Ralph Casselman, Paine Lumber Co., Oshkosh; Treasurer, Bruce Heebink, U.S. F.P.L.; Secretary, J. J. Allegretti, Chicago; R. Newstedt, Wurlitzer Co.; and W. Parks, American Plywood. Trustees for two year terms. Continuing as Trustees for one more year are Fred Heid, Ekstrom-Carlson Co., Rockford, Ill.; and Robert Hiller, American Cyanamid, Oconomowoc, Wisc.

The outgoing officers were accorded a rising vote of thanks.

FPRS Forum

The FORUM is intended to serve as a medium for open discussion by all F.P.R.S. members, bringing practical answers to specific problems. Questions or contributions should be direct to the Executive Secretary. c/o Wood/Wood Products.

The Problem: What Present and Potential Uses are There for Lignin?

The Answer:

by FOREST PRODUCTS LABORATORY

Madison, Wisconsin

Next to cellulose, lignin is the most abundant chemical component of plants. Softwoods (coniferous species) contain 24 to 28 percent, hardwoods (broadleaf species) 18 to 23 percent, and the stalks or straw of agricultural plants 12 to 22 percent. Lignin is concentrated chiefly in the middle lamella or cementing material between the cellulosic fibers, but some is distributed throughout the fibers.

When wood is pulped for the manufacture of paper, lignin is dissolved, thus freeing the cellulose fibers that are subsequently matted into sheets. Up to the present time this lignin solution has either been pumped into streams, causing pollution problems, or evaporated and burned to recover the pulping chemicals.

The amount of lignin thus totally wasted or burned as an inefficient fuel is equal, on a dry-weight basis, to twice the nonferrous metal production of the United States; that is, twice the combined production of aluminum, copper, lead, zinc, tin, and all of the rarer and precious metals. This is only a small fraction of the amount of lignin that could be made available from wood and agricultural wastes if sufficiently extensive and valuable uses for it could be found. These facts constitute a strong challenge to chemists to find new uses for lignin.

The development of large-scale uses for lignin has undoubtedly been delayed because of the fact that the exact chemical structure of lignin is still unknown. Most lignin chemists agree that lignin is made up of a complex combination of carbon and probably some carbon-oxygen ring structures with appended hydroxyl and methoxyl groups. The number and arrangement of the rings and the positions where the appended groups are attached is still unknown.

Cellulose is made up of long chain-like molecules containing thousands of small repeating sugar residues, which account for its fibrous properties. Lignin, on the other hand, is made up of much larger building units in small nonlinear groups when in the soluble form, and in nonlinear groups of indeterminate size in the insoluble form. It hence has no fibrous properties.

Lignin contains a higher proportion of carbon than does cellulose. It hence has a greater fuel value, about 10,000 British thermal units per pound, compared to an average of 8,600 British thermal units per pound for wood.

Lignin is acted upon by microorganisms much less than is cellulose. It constitutes most of the residue left when plants decay, hence the chief origin of humus is lignin. A few organisms have been found that slowly attack lignin. Studies of the action of such organisms on wood are now under way in several laboratories.

When wood is hydrolyzed with acids, the cellulosic components are converted to sugar, leaving lignin as a residue. If the current pilot-plant studies at the Forest Products Laboratory and Tennessee Valley Authority on the production of sugar solutions for chemical production and molasses for cattle feeding prove economical, there will be vast amounts of lignin residue left from such processes. Lignin obtained in this way is the most inert form of lignin. Thus far, the demonstrated potential uses are in briquetted form for use as a fuel and as a soil conditioner or mulch.

Lignin is chemically acted upon by chlorine, acid sulfites, alkaline sulfites, alkalies, and alkalies with various additives to form soluble products. These chemicals are hence used in the pulping of wood chips. Lignin can be readily precipitated with carbon dioxide gas from alkaline solutions that result from pulping by the soda and sulfate processes. This form of lignin is more reactive than that resulting from wood hydrolysis, and has shown promise for use as a diluent in plastics and paper and fabric laminates. Lignin is converted by the sulfite pulping process to sulfonic acid derivatives, from which its recovery is more difficult.

Lignin, when dissolved or suspended in a solvent, will react with hydrogen gas under heat and pressure. Three types of liquid compounds result, namely, cyclic alcohols, phenolic compounds, and neutral oils. The proportion of each will vary with the hydrogenation conditions and the catalyst used. Methyl alcohol is also obtained in considerably higher yield than from the destructive distillation of wood.

Present small-scale uses and proposed uses for lignin include: 1. An additive to the negative plates of storage batteries to improve their efficiency at low temperatures. 2. An additive to Portland cement to improve its flow properties before setting. 3. An additive or extender for plastics and plastic laminates. 4. An extender for rubber. 5. An adhesive or cement for linoleum. 6. A binder for sand in foundry molds. 7. A binder and dust preventative on dirt roads. 8. An antiscaling agent for boilers. 9. A tanning agent suitable for use together with other tanning agents. 10. A raw material for the chemical production of vanillin, the active ingredient in vanilla extract. 11. A raw material for the production of hydrogenation products. 12. A fuel in powder or briquetted form. 13. A soil conditioner.

Upper Mississippi Section

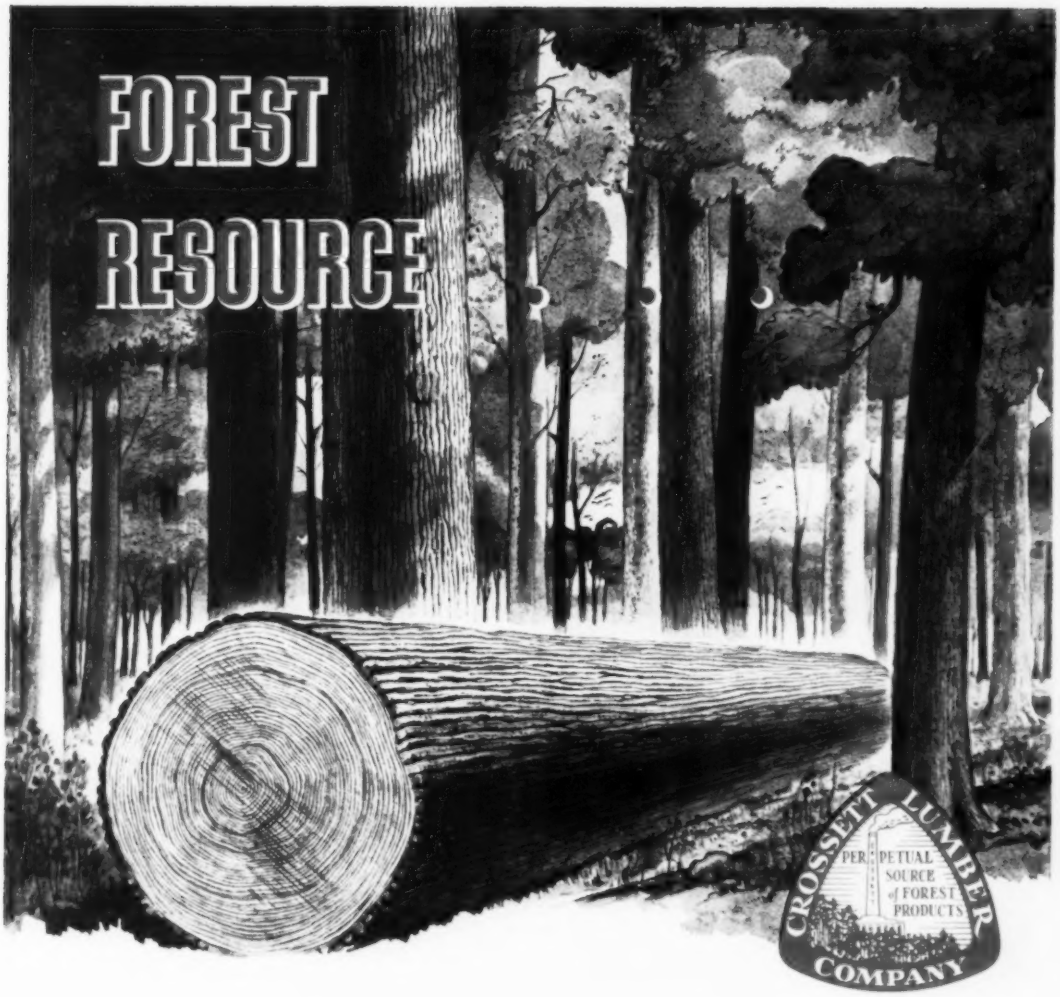
(Continued from page 51)

tation-Grown Red Pine in Relation to properties of the Wood," by *Maxon Y. Pillow*, U. S. Forest Products Laboratory, Madison (by title only).

"A Look Ahead at Forest Products Research," by *Dr. J. Alfred Hall*, Director, U. S. Forest Products Lab.

Other men who have been active in the re-organization of the Section include: Arne Kemp, faculty, Minnesota School of Forestry; James E. Stewart; Verne Fredrickson, Anderson Corp., Bayport, Minn.; E. P. Stark, Speed-O-Laq Co., St. Paul; S. M. Ford, Sifo Co., St. Paul; Bernard Granum, Iron Range Resources and Rehabilitation, Hibbing, Minn.; and Dr. Reese of the U. of Minnesota.

Details may be obtained, or preregistration made through Arne Kemp, School of Forestry, U. of Minn., St. Paul, or the FPRS national office.



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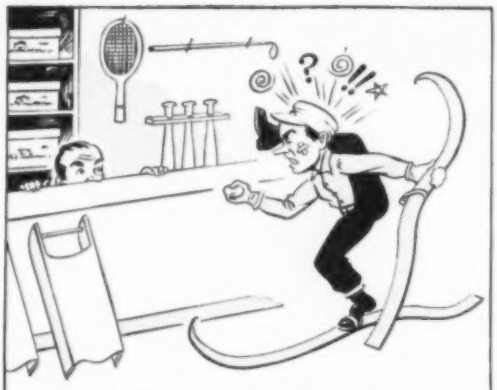

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● Standard Dry Kilns are the sure way to *eliminate costly finished product rejects . . . the sure way to better drying results at the lowest operating cost.* With their internal fan construction and automatic reversible cross recirculation, Standard's world famous dry kilns are helping successful operators in every kind of woodworking plant to cut down losses from "green lumber rejects."

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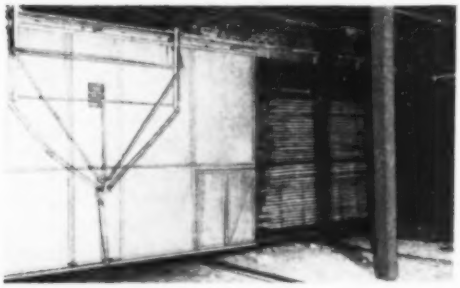

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PATENT DIGEST

by Royden C. Rinker

Plywood

R. M. Boehm (to Masonite Corp.). U. S. 2,557,071, June 19. Subjecting wood veneers to hydrolysis with steam under pressure, arranging in a stack, subjecting to heat and pressure, and chilling under pressure.

Saw

A. Ficken. U. S. 2,557,268, June 19. Crosscut saw guiding mechanism of a one man tree feller.

Panel

M. Clements. U. S. 2,557,412, June 19. Hollow door comprising flat laminated sheet material each having main body of wood to a thinner layer of metal.

Log Loading

T. Summers (to Ontario Paper Co., Ltd.). U. S. 2,557,580, June 19. Log transporting vehicle comprising a load-supporting frame and means for lifting a load and drawing it onto the frame.

Bonding

C. M. Keaton and D. V. Redfern (to American-Marietta Co.). U. S. 2,557,826, June 19. Method of bonding comprising spreading two surfaces with separate adhesives each containing components required by the other for cure and assemblying whereby glueline cure is rapidly attained.

Tall Oil

J. W. Davis and H. M. Spurlin (to Hercules). U. S. 2,558,543, June 26. Separating pine resin from tall oil by dissolving in organic solvent and aqueous alkali and extracting with countercurrent flow.

Wood Peeling

W. J. B. Martin, E. L. Owen, and K. W. Brown (to A. F. Pylant). U. S. 2,558,574, June 26. Log-peeling machine including a cutting disc and a pressure disc journaled for rotation about inclined axes, said discs having cutters on their faces.

Paper Impregnating

J. J. Uber (to E. I. duPont de Nemours and Co.). U. S. 2,558,634, June 26. Precipitating a mixture of rubber latex and a water-soluble sodium salt of lignin in a paper web.

Tall Oil

L. H. Dunlap and C. F. Sievert (to Armstrong Cork Co.) U. S. 2,565,484, Aug. 28. Oxidizing tall oil until a product having a viscosity of 15 to 250 sec. at 25°C is obtained; removing saturated fatty acids by means of a nonpolar solvent and recovering an oxidized fraction free from saturated fatty acids.

Saw Chain

R. E. F. Johansson U. S. 2,565,502, Aug. 28. Saw chain comprising a plurality of pivotally connected teeth arranged in sequences of a left outside cutter tooth, a left inside raker tooth, a right outside cutter tooth, and a right inside raker tooth.

Stain

J. R. Fisher, Jr. and J. E. Price (to Chadeloid Corp.) U. S. 2,565,602, Aug. 28. Staining and filling wood by applying an aqueous emulsion consisting of a solution of a dye, a resinous binder, and an inert filler.

Logging Truck

D. M. Van Vleet U. S. 2,565,748, Aug. 28. Safety means for unloading trucks while in transit.

Veneering

F. M. Curran, J. D. Quist and H. C. Geen U. S. 2,565,952, Aug. 28. Superimposing panels one over the other with adjacent panels spaced apart, having glue covering an edge of all said panels, placing a veneer against the edges and pressing with heat.

Tree Saw

R. G. LeTourneau U. S. 2,566,080, Aug. 28. Portable power actuated tree saw.

Stove

H. Vitek U. S. 2,566,100, Aug. 28. A sawdust burning stove.

Log Bucking

W. H. Rathert, L. Wilson, H. L. Murray, C. A. Wilson and D. W. Martin (to J. Neils Lumber Co.). U. S. 2,563,867, Aug. 14. A log bucking chute having a conveyor chain for moving logs lengthwise.

Wooden Heels

F. N. Grasberger U. S. 2,564,003, Aug. 14. Machine for cutting wooden heels from a cam.

Plywood Panel

A. Elmendorf U. S. 2,564,055, Aug. 14. Laminated panel having a wood face veneer containing V-shaped valleys in the direction of the grain, the wood at the bottom of the valleys being ruptured along the grain to form

(Continued on page 59)

new wonder wood

of Associated Plywood Mills

Here is plywood the beauty of which will amaze and delight you. For here is the spiraled grain of ocean waves; of tide-prints in the sand; of the lure and romance of ocean beaches and wind-swept seas. Here is the durability and practicability of plywood, surfaced with a modern decorator's touch. Not many may have Sea Swirl, for the supply is limited. But for the fortunate few there will be home and office interiors of great charm. Sea Swirl is available at APMI Sales Warehouses exclusively. Call your nearest APMI warehouse for information.

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FORDYCE LUMBER COMPANY

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Since 1889

PATENT DIGEST *Continued from page 56*

crevices and the wood at the sides consisting of wood that originally filled the space within the valleys.

Preservative

G. J. Pritchard U. S. 2,564,276, Aug. 14. Aqueous solution of a phenyl mercury salt of naphthalene-2-sulfonic acid derivatives for preservation of timber.

Covered Article

C. E. Webb (to Edison Wood Products, Inc.) U. S. 2,564,386, Aug. 14. A bar of wood having a rounded top covered with a thermoplastic cap.

Bundle Binder

B. A. Moore U. S. 2,564,442, Aug. 14. Movable land scow equipment for wood handling having a hoist and yoke connected with hoist and means for forming a measured quantity of wood lengths into a cylindrical bundle.

Wood Filling

H. G. Macdonald (to Ameo Development Co.) U. S. 2,565,036, Aug. 21. Appartus for filling a wood surface comprising a support, means for moving a wood member over the support, a drum rotatably mounted adjacent to the support to generate heat by friction against the wood and means for applying filling solid against the drum whereby it is transferred to the wood.

Wood Preservatives

B. O. Hager U. S. 2,565,175, Aug. 21. Preservatives for wood prepared by bringing together in water a hexavalent chromium compound containing calcium, strontium, or barium; a pentavalent arsenic compound, and a sulfate or carbonate of zinc, copper, aluminum, magnesium, cadmium, manganese, iron, mercury, chromium, or nickel; adding the compounds in such proportions as to hold the resulting difficult soluble arsenates in solution but to precipitate the more difficult soluble salts.

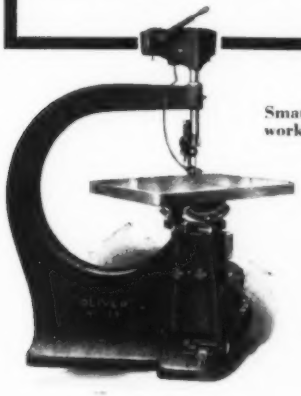
Sheet Handling

R. C. Demler (to International Packaging Corp.) U. S. 2,565,207, Aug. 21. Apparatus for feeding plywood panels from a stack.

Plywood Panel

H. E. Malmstrom (to Paper Patents Co.) U. S. 2,565,251, Aug. 21. Plywood panel with plastic impregnated paper sheet veneers.

"OLIVER" No. 173-E
JIG SAW
Accurately balanced, smooth running



Smart scrollwork and fretwork can add sales-appeal to your line. And it can be produced at small cost on this "Oliver." Note its unusual capacity. It takes 36½" between saw and column. Table is turned one-eighth way 'round to allow sawing of stock of any length and practically any width. An ingenious tension device — found only on the "Oliver"—results in smoothest work and quiet operation.

For complete details write for Bulletin No. 173-E

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For Dry Kiln Control —
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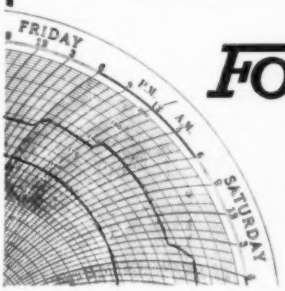
Whether it's "high-climbing" or automatic kiln control instrumentation, any specialized job is more certain to be done best by men who know the problem from A to Z. That's why 9 out of 10 kiln operators prefer Foxboro Controllers!

Foxboro *originated* — more than thirty years ago — the type of control universally used in lumber drying, and has been the leading supplier ever since. Today, thousands of installations of Foxboro Kiln Control testify that this experience pays dividends to kiln operators by preventing degrades and increasing output.

Put this experience to work for you. Foxboro Dry Kiln Controllers include the following features: Multi-Zone (3 controllers in 1); Dual Dry Bulb (for reversible fan operation); Duplex Wet Bulb for steam-spray and damper operation. **The Foxboro Company, 23811 Neponset Ave., Foxboro, Mass., U.S.A.**



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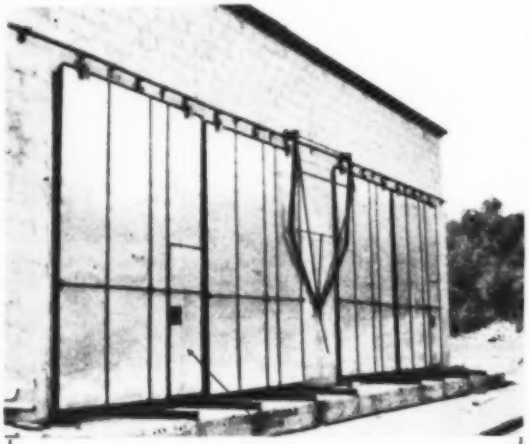
DRY KILN CONTROL

GUARD AGAINST STEAM WASTE



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Send us the dimensions of your old kiln doors, and get estimate on modern Moore Metal-Insulated Kiln Doors. Act today.

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Out in the Shop

HF MOULDERS

High frequency is not best suited on plain surfaces or on long runs where milled-to-pattern knives can be used economically. The reason for this is because when the rotational speed of the cutterhead is doubled, the effect of unbalance is four times as great and centrifugal force is increased proportionately to distort the knives and heads. It is almost impossible to grind the knives with sufficient accuracy to produce accurate jointing.

JOINTER FACING

Facing at the jointer is often performed with feeding devices of the automatic type that are either attached to any jointer, which have to be dismounted, may be swung to one side when not in use, or are self-contained portable units which may be removed when not in use. The most common type employs the endless-chain feeding principle and provides for the application of a number of yielding contact points to the upper surface of the work. The self-contained unit suspends the feeding and facing mechanism above the jointer on four posts, parallel to the cutters widthwise and to the jointer table lengthwise. Yielding pressure is provided by hardened steel fingers that are staggered and arranged on about 2-in. centers, with each finger having an independent spring mounting which gives an independent yield. A raising and lowering device permits proper setting to maintain the amount of compression on stock of any thickness for proper feeding action. The standard rate of feed is 40 f.p.m. but this can be reduced or increased to suit the work at hand.

(Continued on page 62)

WOODICTIONARY

BALLHOOTER

One who rolls or slides logs down a hillside.

New, Automatic Continuous Moisture Detector

Here's a completely new device which stops costly moisture trouble before it starts, helps you manufacture better products—more profitably!

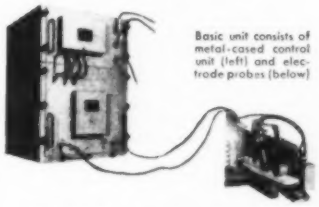
NEW LAUCKS SENTRY Continuous Moisture Detector gives automatic, continuous production-line control of veneer or core stock moisture content—*before assembly*.

Built to meet rugged service requirements, Laucks Sentry is installed on present production equipment, operates at normal production speed, does not interrupt flow of material, requires no special operators.

Completely accurate, completely dependable, this remarkable new device can be adapted to virtually any manufacturing process in which moisture is a problem. The head of the Pacific Northwest furniture manufacturing plant in which Laucks Sentry was use-tested for over a year reports that it "paid for itself in less than six months." Other installations are being made in plywood and pulpwood plants and an adaptation is being developed for use in connection with kiln dried lumber at large sawmills.

Photo shows installation with automatic marking device. Red ink is placed on all stock containing more than desired moisture content.

Quick Facts About Laucks Sentry Continuous Moisture Detector



Basic unit consists of metal-cased control unit (left) and electrode probes (below)

- Gives 100% automatic, positive continuous detection of moisture in veneer, core stock, pulpwood, lumber or other material in which moisture is a problem.
- Is a production machine—not a hand operated meter.
- Does not impede or slow production.
- Can be used on any wood species. Sensitivity: 0.1%. Can be set to check any moisture content common to woodworking practice.
- Will detect moisture regardless of where it occurs in material.
- Can be arranged to mark excessively wet stock, ring bell or activate automatic kick-off.
- Installed by factory-trained technicians. Requires no special operators — your present personnel can operate it after 5 hours instruction.
- Use-tested for over a year. Developed by Research Foundation of West Coast plywood industry.

If You Have a Moisture Problem, Write Details Today for Free Consultation

LAUCKS Sentry

Continuous Moisture Detector

Laucks Sentry Products

4441 Stuart Bldg. Dept. LL11, Seattle 1, Wash.

Manufactured by Instrument Division, Laucks Laboratories, Inc.

"A Sliver or a Slab?" How better can we tell you the scope of PAMUDO'S operations! This should be of real interest to you on your Wood Products problem. For Pine and Fir cut-stock; factory grade Pine; Fir Plywood in standard sizes or cut-to-size —it's PAMUDO! Industrial users of Plywood and lumber products, have, thru our 39 years of service, been assured of a dependable source of supply.

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Straight and Mixed Cars.

Lumber and Lumber products . Fir and Pine Mouldings, Doors, Plywood and Cut-Stock.

Stock Millwork—Cut-to-size Industrial Plywood.

TACOMA BUILDING, TACOMA 2, WASHINGTON

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WAREHOUSES IN 5 PRINCIPAL CITIES

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- Kansas City 5, Kansas
- Chicago 38, Illinois
- Baltimore 31, Maryland
- Elizabeth, New Jersey

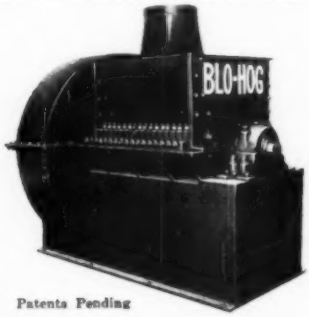
OUT IN SHOP *Continued from page 60*

WHERE BEVELS ARE OUT OF THE ORDINARY FENCE-TILTING SCOPE, flatter than 45-degs., some operators use a thin rider board, clamping it along the front edge of the infeed table, at a proper distance from, and parallel with, the edge of the rider board that is nearest the fence. This arrangement provides the work to be beveled with a two-line support in its travel over the cutterhead, that is, one corner of the workpiece will bear directly on the jointer bed adjacent to the fence while the top corner of the edge of the rider board will make line contact with the underside of the workpiece. The value of the bevel produced can be adjusted or changed by moving the jointer fence toward or away from the board or by varying the thickness of the rider, making sure the fence and rider board are always parallel. It is usually easier to make this adjustment by changing the position of the fence widthwise on the jointer table.

• • •

IT IS NECESSARY TO KEEP THE TABLES IN PERFECT ALIGNMENT for good work at the jointer. A common method employs two accurate straight-edges, made as long as the machine and about 1 in. thick and 4¾ in. wide at the center. These straightedges are laid lengthwise on the machine, one on each side; the incline supports are loosened and, after they have been driven into position to align the tables accurately, the bolts are tightened up snug. After the tables have been properly aligned, the infeed table is lowered sufficiently to make the required depth cut.

(Continued on page 64)



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Eats Up Everything

. . . including Pine, Oak, Gum, Hickory, Elm, Wet Veneer Round-up and Sandy Bark.

Conveyor-fed, no attendant is required to "feed the hog."

Sturdy breaker lugs give absolute protection from major damage caused by tramp steel.

Maintenance costs unbelievably low.

Write for bulletin and details.

Jacksonville Blow Pipe Co.

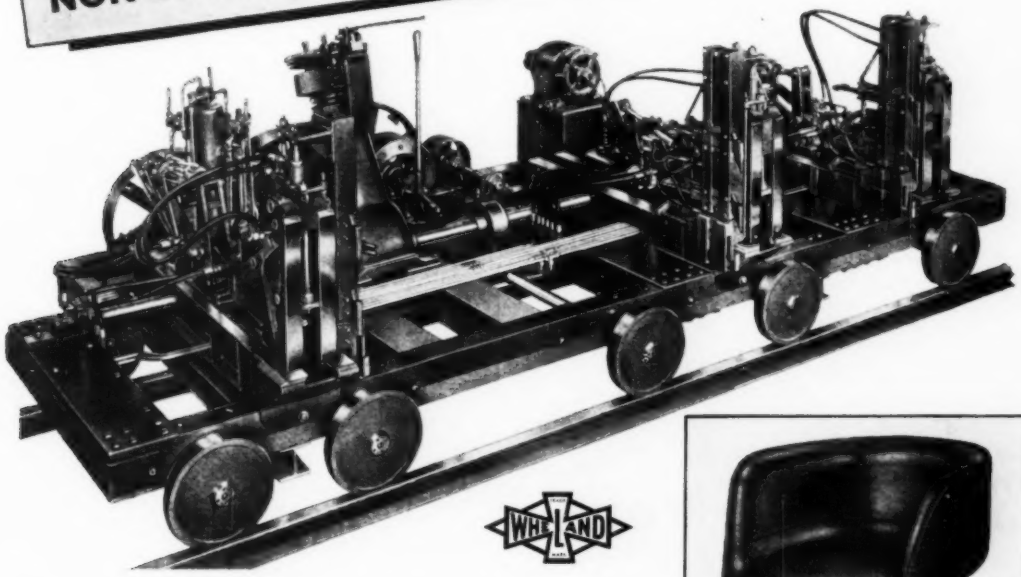
Jacksonville, Florida

FOR *FASTER PRODUCTION* and *GREATER ACCURACY*

THE WHELAND 481 CARRIAGE

WITH TWO-WAY TAPERS AND NON-DEFACING CAHOON DOGS

Made for the mill owner who wants to get every inch of lumber from his logs



The Wheland 481 Sawmill Carriage is built to give you all the best features in one carriage. Combines air operated non-defacing Cahoon dogs, one-way and two-way tapers in any combination. Hand, air or electric operated setworks. Engineered to fit band or circular mills. Wheland carriages are built to meet your needs. For more information on this and similar carriages, write for Bulletin AD-1.

RIDE A COMFORTABLE SEAT—
This new Wheland seat makes a lot of difference to the man riding the carriage. It can mean a lot to the mill owner, too, through better work by a setter who isn't tired. Just sit in this seat—it's comfortable beyond comparison.

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MANUFACTURERS OF COMPLETE SAWMILLS AND AUXILIARY MACHINERY
CIRCULAR SAWMILLS—HEAVY, PORTABLE • BAND SAWMILLS • EDGERS AND TRIMMERS • TRANSMISSION AND CONVEYOR MACHINERY

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FOR OVER 80 YEARS . . . THE FOREMOST NAME IN SAWMILL EQUIPMENT

MOISTURE MEASUREMENT

AT ITS Simplest

TAGLIABUE midget moisture meter

here's all you do:

1 **INSERT ELECTRODES**
Just press or drive the needle electrodes into the wood to be tested.

2 **PUSH A BUTTON**
A thumb's touch on a handy button turns on the instrument.

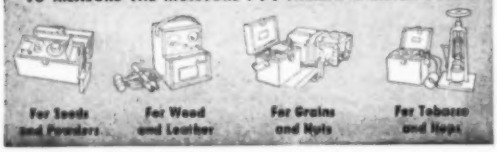
3 **READ PERCENT MOISTURE**
Pointer shows moisture content on an easily read scale calibrated up to 30%.

Simple, versatile, accurate—that's the TAG Midget Moisture Meter. Get full details by sending now for this informative new 6-page illustrated bulletin, No. 1295P.

TAG

TAGLIABUE INSTRUMENTS DIVISION
Weston Electrical Instrument Corporation
614 Frelinghuysen Avenue, Newark 5, New Jersey

TO MEASURE THE MOISTURE . . . THERE'S A METER BY TAG



OUT IN SHOP *Continued from page 62*

Moulder Cutting Angles

THE CUTTING ANGLE OF A SQUARE HEAD MAY BE ALTERED somewhat by varying the amount of projection of the knife beyond the lip of the head. For any substantial change, however, it is necessary to back bevel the knives. In most cases this need not be too great and can sometimes be done sufficiently with a slip stone. Where it is necessary to grind the back bevel, it must not be made wide enough to extend beyond the lip edge or chips are apt to wedge into the crevice and cause trouble.

Jointer Fences

MOST JOINTER FENCES ARE EQUIPPED WITH POSITIVE STOPS FOR BOTH square and 45-deg. positions. If these are not available, it pays to use special gages, made of metal or hardwood, for all standard bevels used. The try square, of course, can be used to check for square. Any bevel cut which recurs regularly should have a gage which will permit setting the jointer fence with proper accuracy and speed. A production millwork plant, for example, uses double-end gages of this kind made of hardwood. In one of these gages, one end carries a standard door bevel and the other, a standard window-sill bevel.

For More Profit from Wood read *WOOD combined with WOOD PRODUCTS.*

Facilities To Serve You

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DRY SHEDS—Ample storage Adjacent to Carline Means Dry Lumber for you.

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ATKINS *Narrow Band and Circular Saws*

"Silver Steel" band and circular saws are the finest that money can buy. Their top quality combines with *plus* performance to assure you of value that means—*more for your money!* Generations of specialized experience go into the manufacture of these superior saws—saws that will save you money and serve you better!

Use — Don't Abuse — FINE TOOLS!

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ATKINS
SAWS ALWAYS AHEAD

ATKINS

FURNITURE COSTS

(Continued from page 35)

the operator's fault but could be due to things beyond his control. In the case of the platform, such difficulties are easily overcome because the operator shoves the pieces of furniture on to the next operator, or if the latter is not ready for it, the article is pushed toward the back of the platform.

As the foregoing indicates, one sees partial adoption of so-called modern assembly line techniques but it should also be evident that a great deal of work is yet to be done in this connection if one is to take full advantage of the potential savings which are available.

Mechanization and improvement in finishing rooms have probably received more attention in recent years than have any other phase of furniture manufacture. Now a piece can be finished in a matter of hours—all through the proper combination of conveyors and baking ovens. Great improvements have likewise been forthcoming in finishing materials. These improvements have meant much to the furniture manufacturer and the ultimate consumer alike. Due to top coats being harder and print free, one can utilize pressure packing with resultant savings in both packing labor and materials not to mention further savings in warehouse space and freight costs. Reasonable light-fast colors permit a wider selection of colors to choose from and also help safe-guard against future customer complaints. Also, their is less difficulty in controlling colors from cutting to cutting.

When Mengel's finishing system was installed several years ago, it was said to be the longest of its kind in any furniture factory in the United States—a little under two miles. It is continuous, and the furniture is not taken off from the assembly department to the rub room. It is of the overhead, monorail, type with the 1300-1400 hangers spaced six feet apart. There are eight spray booths and five ovens.

Conveyor Speeds

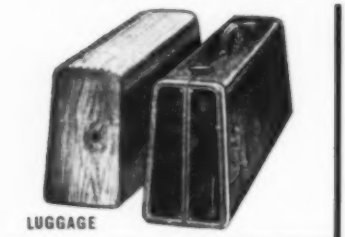
The speed of operation depends to a certain extent on the type of furniture being run, but usually varies from 15 to 20 feet per minute. The oven temperatures are maintained at from 120 to 130 degrees F with proper humidity regulation to satisfy both the solvent balance in the materials we use and the moisture content equilibrium point of the wood itself. Proper cooling times are provided between operations. Until a few months ago, the firm fed directly from this conveyor to a powered slat rubbing conveyor, however, it was found that additional curing time, between the final top coat and rubbing, was desirable to help minimize shrinkage. After rubbing, furniture feeds on to a dead roller conveyor where the cases are upfitted, cleaned and touched up, inspected and packed.

It appears that the human factor is more important in finishing than in any other phase of manufacture. It, therefore, follows that failure on the part of the finishing department personnel to properly perform their function can be extremely costly. Take a filler room for instance—poor padding or poor clean up of filler can put a plant in a lot of trouble in a very short time. There is an old saying that "you make or break your finish in your filler room". This is certainly true in a great many cases.

There are certain mechanical devices available to assist in handling filler but it appears that further improvements in this connection are necessary. Picking filler out of corners,

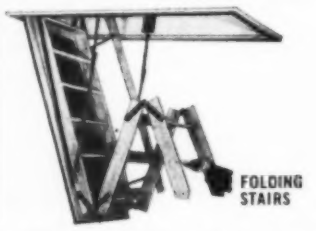
(Continued on page 68)

INDUSTRIAL WOOD PARTS
by WEYERHAEUSER


LUGGAGE

GRAIN CLEANER

TOYS


FOLDING STAIRS

● Leading manufacturers in many industries find Weyerhaeuser a dependable source of supply for wood parts. Blanks of Western softwoods are cut to size for assembly and finishing in their plants. A number of other customers find it more economical to have Weyerhaeuser handle certain of the moulding operations.

Partial or complete fabrication of wood parts by Weyerhaeuser usually means attractive economies by avoiding waste . . . saving freight . . . saving factory floor space . . . speeding assembly . . . reducing inventory through rapid turnover.

Weyerhaeuser's large-scale facilities permit mass production for lower costs as well as for product uniformity. We may be in position to help you simplify your fabrication and reduce costs. A letter will bring you complete details as to how we can serve you in the direction of efficiency and economy.

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Industrial Wood Parts Department

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top production results when using BADGER heads

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A ROUND CORRUGATED HEAD WITH GROUND-TO-PATTERN KNIVES

OR WHETHER IT'S A LONG PRODUCTION RUN USING CLAMP "T" SLOT HEADS WITH MILLED-TO-PATTERN BITS

MACHINING PROBLEMS? *Our engineers will be glad to help you. Send wood sample or sketch of pattern desired; spindle diameter H.P., and R.P.M. of motor; type and make of machine; maximum width of stock and type of head desired.*

Engineers for the Woodworking Industry

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Low cost Meyercord Decals both decorate *and* personalize Aladdin Industries new "Chuck Wagon" lunch box for young Hopalong Cassidy fans. A special nameplate Decal in the form of a Chuck Wagon provides space for the owner to write his name, and "Hoppy" himself decorates the box. Yes, any product, any commercial surface gains new sales and eye-appeal with Meyercord Decals. They're easily and quickly applied at production line speeds—at a fraction of handpainting time and cost. Don't let "unusual" surfaces deprive your product of the sales power packed in Meyercord Decals.

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CONTEST ENTRY BLANK! MAIL TODAY!

WHAT YOU WIN: A delightful, all-expense ten-day holiday in colorful Mexico for two persons. RULES OF CONTEST: Write a letter in 200 words or less, describing an effective, problem-solving use of Decalcomania by your company or industry. Contest is open to any commercial user of Decalcomania, regardless of type of usage or source of supply. You do not have to be a Meyercord customer. Coupon is your official entry blank. Fill out and attach to entry. Please use Company letterhead. Contest ends midnight, January 15, 1952. All entries become the property of The Meyercord Company. Decision of judges shall be final. In case of a tie, duplicate prizes will be awarded. Winners' names will be published. Employees of The Meyercord Company, its retail dealers or advertising agency are ineligible. JUDGING: Entries will be judged on the basis of practical and interesting problem-solving uses of Decalcomania. Enter the Contest TODAY! Anyone can Win! Attach this entry blank to your letter and mail to The Meyercord Co., 5323 W. Lake St., Chicago, Ill., Box 31-11

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City_____ State_____

(Continued from page 66)

crevices, and the like, is at best handled very inefficiently at the present time. The rub room, likewise, relys almost wholly on the personal equation. There have been some minor improvements, but the labor costs for a good rub job are still high. It is believed possible to replace a lot of present day "elbow grease" by adaptation of modern mechanical devices used in other industries.

I do not feel that any discussion of furniture manufacture would be complete without a word about handling damage which occurs throughout the entire process of manufacture. All of us would be appalled if we actually knew the amount of money lost annually because of rough and careless handling. This is a problem requiring constant study and improvement. Personnel must be taught the value of the material they are handling and the cost of repairing damaged parts. One must eliminate as much handling as possible and make sure that loads are properly stacked and protected—that chips are not allowed between flat surfaces. Handling equipment should be studied with an eye toward the reduction of this source of waste which is a real one.

JOBS DONE SMOOTHLY,
ACCURATELY WITH
GREENLEE COUNTERSINKS

Countersink precisely as you want to . . . swiftly, smoothly with GREENLEE Adjustable Countersinks which let you set the lead drill at whatever boring depth desired. Wide range of sizes . . . three types: (1) with extension-lip type counter for boring flat-bottomed holes, (2) with beveled cutting edges corresponding to the taper of flat-head screws and (3) with beveled cutting edges to countersink for screw heads below the surface of the wood. Write for facts. Greenlee Tool Co., 2161 Herbert Avenue, Rockford, Illinois

Ask for free *Boring Chart for Wood Screws . . . simplifies tool selection*

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CUTTERS • COUNTERSINKS • MAKERS OF TECO
GROOVING TOOLS FOR TIMBER CONSTRUCTION

FOREST RADIO

(Continued from page 36)

pick-up travel to reach all operations. Two-way radio literally has put every logger within arm's reach of headquarters and has helped flame-proof forests. On the fire line, two-way radio has saved hours of time and rendered crew action more effective because of the liaison between headquarters and the field.

Two-way short wave radio has payed its way in keeping machines running. When a machine goes down, the operator immediately diagnoses the trouble, spots the repair parts needed and gets on the radio. Down in the distant valley the shop foreman hears the call, grabs the "mike", and by consulting his parts catalogs soon finds the gear, shafts or fitting required. In a matter of minutes, the warehouse attendant finds the "gimmick", and a special delivery pickup and mechanic is on the way to render first aid. Usually the machine is back in business in a short while.

Trucks leaving the reload station, where log loads are transferred to railroad cars, frequently can be saved a long trip back to an empty landing. If a side breaks down and can't load logs, the trucks serving that side can be redispatched by radio to another active side.

Increases Efficiency

The logging superintendent has become more efficient, because all day long, whether he is in the office or on the road, he can keep tab on his operations and give orders and instructions to meet changing conditions.

Radio has saved lives, too, lives important in times of manpower shortages. Sometimes only a few minutes mean the difference between life and death. A logger hurt in the woods now has help within his immediate reach. One life saved because of this prompt action more than repays cost of set installations and saves families heartbreaks.

Even the logging railroad welcomes radio. Elimination of the usual ten-minute stops required to report switching stations to headquarters by telephone saves the average locomotive about $67 a day, not to mention the cost of brake shoes.

Weyerhaeuser is using several remote control stations to boost its radio coverage in rough country. Remote control stations are on high hilltops and usually are antennae masts con-

sisting of trees, as high as 212 feet, as at the Longview, Washington woods headquarters. Power and telephone lines which activate these remote-control stations may run from headquarters stations as far as two miles distant. Beamed from these super-high transmitters, radio waves can saturate the back country and reach nearly every place. Natural obstacles, like Mount St. Helens, apparently act as bouncers for the radio waves and cause them to sneak down canyons which couldn't be reached by straight line-of-sight transmission.

Most unique of Weyerhaeuser's mobile installations is that on a river tug-boat at Raymond. This craft, used in herding log rafts to the mill, can be radio controlled from the shore. The river foreman with mobile set in his car can issue changed orders to the boat crew upon a minute's notice. *It beats swimming!*

Other unusual installations are in an airplane, where C. Davis Weyerhaeuser, who heads the Forestry and Lands Division, can check forest fires and timber cruises and report to ground crews.

Lippincott stresses maintenance as the most important job in keeping the short-wave radios beaming efficiently. He keeps busy making the rounds in Oregon and Washington, trouble-shooting on preventive maintenance.

Loggers are air minded these days, and the day of the radio controlled sky-hook may not be far off!

Today, two-way radio is a prime logging tool and has won many friends in the timber harvesting fraternity. Much of the credit for basic equipment developments in the field of portable radio is due Harold K. Lawson of the U. S. Forest Service. The Service laboratory in Portland, Oregon, which carried on much of the original research, is being closed this year after 23 years of operation. Similar activities are now largely carried on by private industry.

WOOD SALUTES

(Continued from page 29)

Board in Seattle and Portland.

Contractors all over the country now keep him and his company busy supplying hardwoods and fir plywood for construction uses.

The American Forestry Association, the Forest Products Research Society, and the National Hardwood Lumber Association all have benefited from his broad experience in the field. Most of his "off" hours are spent in gardening at his home in Winnetka, Ill.

CUTTERHEADS

(Continued from page 43)

and getting very satisfactory results. This, however, will not give 100 percent results as the moulding is only ⅝-in. thick and unless the joint is perfect it may not hold.

How Joint Is Made

A slight study of the pictures with this article will show how this joint is made reversible and the illustration of the break test will show that this joint is particularly firm. There are many sash and doors in the country today where the stiles are spliced in this manner. With a very light colored glue the joint is hardly noticeable. In a veneer door, stiles and rails both can be jointed in this manner and the joint is completely covered with the veneer.

This type of joint has been proven a very effective joint and in most cases is acceptable by the trade. Particularly so in times of national emergency when most materials are critical and hard to get. Such a head or heads can produce more useable material and cut the loss incurred by scrapping short stock.

MANSFIELD

Dependable DIMENSION *Stock*

Mansfield Dimension Stock is manufactured to meet your most exacting requirements. The Hardwoods and Pine are selected from the 40,000,000′ production of our two band mills. The lumber comes from Mansfield timberlands all on selective cutting perpetual yield basis.

The Mansfield Dimension Plant with its modern machinery, trained manpower and supervision and long experience in the field provides the "know-how" that means complete satisfaction and lower production costs.

We specialize in glued-up panels and furniture dimension, either semi-finished, or moulded, equalized and tenoned. However, our plant is equipped and available to produce interior trim, stair treads and risers or practically any other item to meet your requirements. Send us your specifications. Our prompt quotations and samples will convince you that Mansfield Dimension is your best buy today.

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P. O. Box 91 **Shreveport, Louisiana**

Band Mills: Zwolle and Winnfield, La. . . . Dimension Plant: Zwolle, La.

ADHESIVES

(Continued from page 41)

metal rollers for cassava, casein and soybean.

Plywood, Approximately 5,000 Sq. Ft. per Day

This classification is likely to represent, chiefly, woodworking factories of moderate size, which have departments making their own plywood, largely of hardwood veneers. The daily glue consumption would be of the order of 300 to 500 lbs. of dry glue base. In this group the moisture resistance requirements are likely to be minimum to medium, seldom maximum.

Small hot presses, with one to three openings, using low pressure steam and attaining curing temperatures of 235°F to 250°F, are finding distinct favor in factories of this size. Where such hot presses are available, and water resistance requirements are moderate, extended ureas are suitable, up to two/one ratios of glue solids to extenders. Moisture resistance is improved with lower extended ratios. Melamine ureas will substantially increase moisture resistance.

Factories with hot presses of the type above, and a maximum curing temperature of 250° F, are not properly equipped for making plywood of maximum waterproofness. The minimum temperature requirement for either phenolics or fortified ureas is 275° F, and preferably 300° F for better volume output.

When hot presses are not available, the choice with minimum water resistance requirements, would be cassava for the lowest cost glue line, followed by urea resins in a two/one ratio (glue/extender), and casein, in an upward cost range.

Spreader requirements would be the same as under the 10,000 sq. ft. classification above.

Plywood, Less Than 1,000 Sq. Ft. per Day

The production of this daily volume will require approximately 100 lbs. of glue. A shop of this size is likely to adopt a single type of glue for all requirements, including both plywoods and assembly joints. The equipment available and expediency are more likely to govern the selection of the glues, than is the inherent suitability of the glue itself. The operating facilities of such shops may be a minimum of hand screw clamps, and rarely a complete plywood outfit with a small hot press.

For commercial plywood, without hot pressing, casein glues and low extended resin adhesives can be used, if water resistance is a factor. If water resistance is unimportant, a considerable range of options can be offered. There are several glues of sufficient versatility to choose from, such as animal glue, casein glue and highly extended urea resins. Conditions might exist that would justify the use of cassava glues, for plywood only, but preparing small batches may be found a bit complicated.

If the small hot presses will provide 300° F temperatures, the preferred procedure for maximum waterproofness, will be phenolic film, as outlined in the 10,000 sq. ft. group above. If only 250° F is available, and substantial waterproofness is essential, the melamine or resorcinol resins might be used. For moderate waterproofness, ureas of varying extensions would be suitable.

Brush spreading will be usual, and grooved rubber roller spreaders may sometimes be available.

Laminated Timbers

Laminated timbers for structural uses require high weatherproofness,

Look to Nickey Bros. Inc. For

PHILIPPINE MAHOGANY

Now available in

Lumber
Plywood
Bedrails
Glued-up Stock

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which can only be obtained with resorcinols and phenolic-resorcinol combinations. Next in order, with medium weatherproofness, is casein with high lime content. Casein will set at temperatures as low as 60° F, while the above resins will require 75° F and ordinarily cannot be made outdoors, but need heated work rooms.

Laminated timbers for marine applications require the above resin adhesives, but for maximum durability, should be cured in conditioning chambers at around 200° F. Hardwoods require higher curing temperatures than do softwoods.

Assembly Glues

Assembly gluing is a broad term, but is generally understood to include types of glue joints, other than plywood, edge gluing for cores, and laminated timbers.

The cost of glue in assembly work is quite subordinate to its ease of preparation and constant readiness for use. Quick "tack" and short clamping time are of definite importance.

Animal glues are undoubtedly more widely used in assembly work than any others, since their utilization is well understood. If water resistance is a factor, either low extended ureas or casein will increase exposure resistance. Resorcinol resins will give maximum durability. All of these glues can be used satisfactorily at room temperatures, although animal glue needs a bit of attention to avoid chilling with cold wood.

Polyvinyl Resins

Polyvinyl resin emulsions are finding increasing use in assembly work and are supplied in liquid form ready to use, and will remain usable, if kept protected, until the containers are empty.

There are also a number of proprietary packaged liquid glues that find wide use, but all should be carefully investigated as to their effectiveness.

Responsibility for Choosing Glues

A thorough test of any new type of glue before adoption is a time proven rule in woodworking. Glue manufacturers are careful and conservative in their recommendations, but salesmen, distributors and dealers may not be as well informed. Glue manufacturers should be consulted for any supplementary data, and their instructions followed with care.

In the last analysis the glue user must protect his responsibility with adequate and intelligent testing.

Conclusions

These suggestions in glue selection might be compared to road maps for autoists. Route markings are excellent for general guidance, but it takes an alert driver to work his way to his exact destination without mishap or delay. Perhaps the comments above will help the potential chooser of a glue to solve his problems with a minimum of delay and difficulty.

Reprints of this article will be available upon request to WOOD combined with WOOD PRODUCTS 139 N. Clark St., Chicago 2, Ill.

BOUND LUMBER

(Continued from page 39)

in width and 2 ft. in height. Each unit shall be strapped with ¾ x .035 or heavier high tension steel strapping or banded with 8 gauge or heavier high tension wire."

Most of the lumber packages built up for shiploading require intermediate separators for slings. The packages are first strapped at the mill and wire slings are placed by hand, two to a lumber package, either at the

(Continued on page 72)

Is Your Wood Gluing Department a Production Bottleneck?

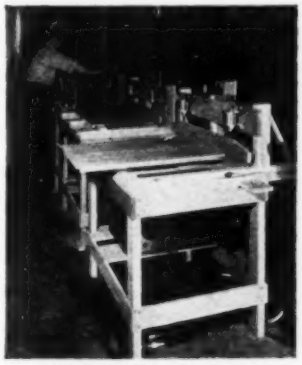
Now... discover

Thermatron

HIGH FREQUENCY GENERATORS AND EQUIPMENT

BOND WOOD PERMANENTLY IN A MATTER OF SECONDS!

THE OLD WAY at Royal Wood Products Co. Until the wood gluing department was streamlined by installation of THERMATRON equipment it retarded allover production. Two men worked on one assembly, which involved timetaking manual adjustment of clamps, including protective measures to eliminate clamp damage on expensive veneers.



THE NEW WAY! A battery of jigs each equipped with a 500 watt THERMATRON generator, at plant of Royal Wood Products Co. Machines bond wood assemblies in first step in manufacture of TV cabinets. Panels are firmly glued in 20 seconds and ready for next step immediately.

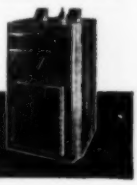
THERMATRON, product of a pioneer in the electronics industry, may revolutionize your wood gluing department just as it has recently done for Royal Wood Products Co., Brooklyn manufacturer of fine television cabinets.

THERMATRON High Frequency equipment sharply reduces unit production time, floor area and manpower needed . . . eliminates expensive clamps and most rejects. And, THERMATRON frequently permits construction that reduces the number of reinforcing blocks which only add dead weight and bulk!

Installations of THERMATRON generators and equipment are available under one contract and one responsibility, because Radio Receptor Co. designs and builds the required jigs and fixtures right in its own shop. In many cases the initial cost of THERMATRON equipment isn't much more than the investment in hand clamps it replaces.

For "non-headache" wood gluing outline your problems to us today. Our engineers will gladly make recommendations without obligation . . . And be sure to request our latest bulletin No. W-8

Standard stock generators available from ½ KW to 6 KW output, operating on 110 or 220 Volt lines. Special units supplied for unusual applications.



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Thermatron division

RADIO RECEPTOR COMPANY, Inc.

Sales Dept.: 251 W. 19th St. New York 11, N. Y. • Factory: 84 N. 9th St. Brooklyn 11, N. Y.

(Continued from page 71)

mill or at dockside. These slings are usually of ⅝-in. 6x19 plow steel and a pair of slings will handle 1¾ tons easily. The slings are usually left on the packages until they are unloaded at the discharge point.

Lumber is carried in strapped packages from the mills to dockside by carrier or bridge crane where they are placed by crane in the hold. 100,000 bd. ft. of bound lumber can be handled per hour in this manner.

Steel strapping or wire banding is not too difficult to apply in strapped lumber packaging. The method of application consists primarily of looping the strap or wire around the lumber package near the end, about one-quarter the length of the package from each end, drawing it tight about the package, and fastening the ends either by crimping a steel seal over the edges of the strapping or twisting the wire ends.

A typical strapping operation would require a strapping dispenser or reel to feed the strapping, a stretcher or tightener to tension the strapping, snippers or a shear to cut the strapping, and a sealer or crimper to fasten the seal or twist the ends of the wire. Automatic sealers are commonly used which feed seals from a loaded chamber, holding up to 100 seals, and crimps the seals over the edges of the strapping.

Lumber package loads are usually secured and braced by means of heavy-duty strapping tightened over the load at strategic points. This is held by sturdy anchor plates which are fastened to the car flooring. Blocking is sometimes used but where lumber packages are intelligently selected this is not necessary.

Where lumber shipments are made by truck, the strapped lumber package system is also popular. At one yard, eight trucks formerly averaged about 16 delivery loads per day and required 15 men to load and unload lumber. With the strapped lumber package method, 4 trucks make 32 deliveries daily. Only 7 men work in the yard. Fork lift trucks are used to handle the lumber packages and can load a truck in about 15 minutes. The average size of their lumber units in strapped packages are about 4 by 4 ft., contain about 2500 b.f.m., and weigh about 3200 lbs. for rough lumber and about 2750 lbs. for finished lumber.

Railroads generally favor this method of preparing lumber shipments because it is safer and cars are loaded and unloaded faster. Less strain is put on the cars by the secured loads and car maintenance costs have been lowered. Their chief approval is due to the added pay load capacity afforded cars.

Strapped lumber packages are preferred for water shipment as they are more easily loaded and unloaded, stack better in the hold, and increase the number of payloads possible in a given period of time.

Strapping costs at the mill are not prohibitive as it has been demonstrated that lumber strapping may be performed with either steel strapping (.035) or wire banding (8 gauge) at a cost of about 15 cents per 1,000 feet of lumber. Savings realized in handling and loading costs alone can easily absorb the additional cost of strapping and may compensate for extra sorting as well. Sawmill operators have found that strapping green lumber will help prevent it from warping and twisting in transit thus reducing degrade and adjustments upon delivery.

The distributor or secondary manufacturer who receives his lumber in strapped packages enjoys many advantages. He can use mechanized equipment to unload it faster and handle it easier without any need to sort before stacking in storage or delivering it to his plant. The storage

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Whether you need "plain or fancy" dimension stock, you'll find Bruce a good, dependable source of supply. For over 25 years we have specialized in production of solid and glued-up Southern hardwoods, either completely or partially machined—and in flat dimension stock. Our dimension plants at Memphis and Little Rock have the most modern equipment for precision work at quantity prices.

You can depend on Bruce quality and service. Send us your specifications or samples, and we'll tell you what we can do for you. Free technical and advisory service.

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BRUCE **Furniture Dimension**

FLAT STOCK • WOOD PARTS

SEND US YOUR INQUIRIES ON SOUTHERN HARDWOOD LUMBER

yard can be utilized to better advantage, also. He knows at all times just how much lumber is stored in the standard size tallied packages.

The success enjoyed by the lumber industry has prompted manufacturers of larger and more bulky wood products to use this method. Veneers and plywood are regularly shipped in strapped bundles. Long poles are strapped on cars for safer transportation and pre-fabricated housing units are being shipped with strapped crating.

Where the strapping method can be used, strapped packaged lumber is streamlining handling, expediting larger and better shipments, and providing many other advantages to both mill and customer. Shipper, Carrier and Consignee all agree—*Today's lumber is bound to get there in good condition.*

RED LION

(Continued from page 37)

R.F. supplier, Westinghouse, this problem was also conquered.

Operators should be trained not only in equipment operation, but also in proper glue mixing, etc. Generators must be operation within prescribed limits. Trouble spots likely to occur should be spotted by the operator and he should be able to help the mechanic in making repairs.

Through the use of R.F. heating, the plant has been able to build finer cabinets in a fraction of the time previously required. Sub-assembly gluing costs have been cut as much as 50 percent; while cabinet assembly costs have been lowered by five to 10 percent. In every case of R.F. installation the unit has paid for itself in a year's time or less.

Statement of the ownership, management, and circulation required by the Act of Congress of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946 (Title 39, United States Code, Section 233) of Wood & Wood Products, published monthly at Pontiac, Illinois, for October 1, 1951.

1. The names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, Herbert A. Vance, Chicago, Ill.

Managing Editor, Richard C. Art, Chicago, Ill.

General Manager, Robert M. McFarland, Chicago, Ill.

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Herbert A. Vance,
Publisher.

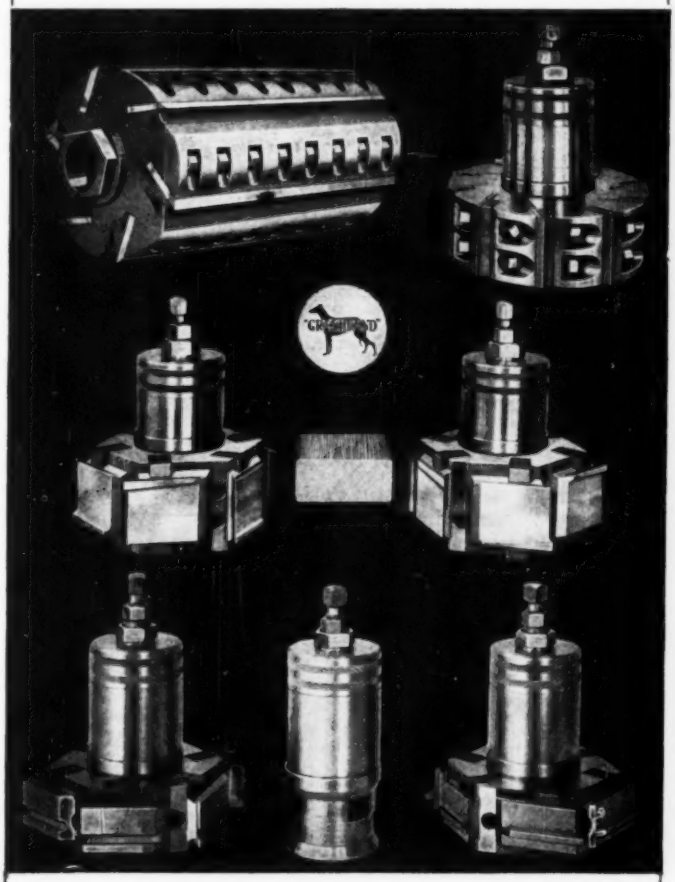
Sworn to and subscribed before me this 21st day of September, 1951.

ELOISE M. KUHN
Notary Public

(Seal.)

(My commission expires Nov. 28, 1953.)

CUTTER HEADS - - - For Every Possible Requirement



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Products . . . . processes
equipment . . . . methods
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Lubrication Problem Solved

A data sheet telling and showing how a manufacturer of a lumber trimming machine solved a problem of lubricating thirteen sets of chain drives and bearings extending over a distance of 24 feet. Results after gruelling sawmill service; 1) bearings in excellent condition; 2) chain drives and sprockets showed no marks of excessive wear; 3) no accumulation of oil in bottom of housings. The lubrication system—Norgren Micro-Fog.

Write for Norgren Blueprint No. 109. C. A. Norgren Co., Dept. W, 222 Santa Fe Drive, Denver 9, Colorado.

MOISTURE CONTROL PROBLEMS *Solved* with BAHNSON HUMIDIFIERS

Winter time is dry air time in woodworking plants. Dry air robs stock of moisture, causing production and storage difficulties as well as lowering quality in the finished product.

The simple solution is automatic humidity control with Bahnson Humidifiers.

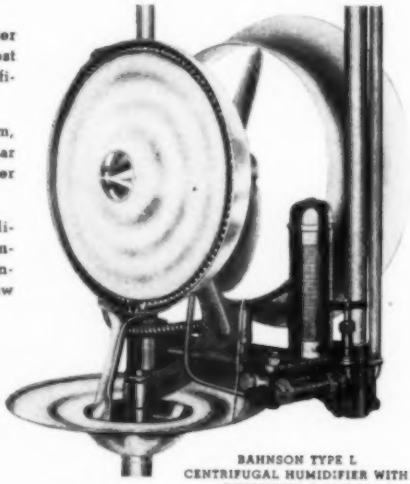
ECONOMY—Atomization of water by centrifugal force—the most economical method of humidification yet devised.

SIMPLICITY—Requires no steam, compressed air, or pumps. Year 'round humidification with water at city pressures.

FLEXIBILITY—Individual humidity control on unit requires no installation. Complete self-contained units easily relocated or new units added.

NEW—FOR YOU

The Bahnson Company has prepared a valuable booklet entitled "Humidity Control in the Woodworking Industry." It covers all phases of manufacturing, storage, and finishing. For a copy, address us on your Company letterhead.



BAHNSON TYPE L CENTRIFUGAL HUMIDIFIER WITH AUTOMATIC CONTROL

Bahnson Company
ENGINEERS AND MANUFACTURERS
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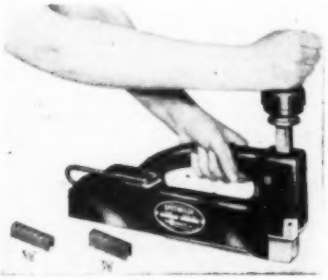
Medley Block Flooring

The Medley Block is a new type of flooring manufactured by the H. G. Macdonald Company, Dept. W, Monrovia, California. The block is also now manufactured by an associated concern, the Anderson-Macdonald Company, Inc., of Fordyce, Arkansas.

Designed primarily to be laid on concrete slab and plywood subfloor construction, the Medley block is unique in that it is flexible in *both* directions, allowing it to go down firmly over minor imperfections in the subfloor. This new type of parquet is made of selected hardwood bonded to 30 pound asphalt-impregnated felt membrane. It is laid in the conventional manner with cold mastic.



Portable Nailing Machine

A new portable automatic nailing machine drives a heavy 16 gauge ⅞ inch staple into soft or hard wood with one blow of the fist or rubber mallet. Crates, pallets, sub-flooring, roofing and similar fastening jobs are securely nailed quickly and without hammer marks.

A completely redesigned molded

frame and several other improved features have been included in the Heavy Duty Spotnailer Model AHE. Easy loading magazine of extra capacity, positive feeding and driving mechanism, light-weight and durable plastic frame, are important factors contributing to the improved performance of the new machine. For complete information, write Spotnails, Inc., Dept. W., 1218 Sherman Avenue, Evanston 20, Illinois.

Guide Line Light

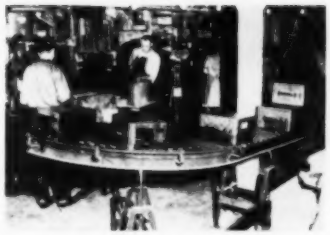
The Guide Line Light, made for woodworking and other industries by the Carter Products Company, Inc., Dept. W, Grand Rapids, Michigan, has been re-designed for greater cost-saving, efficiency, and versatility for rip and tandem saws, double end tenoners, veneer matching tables and layout rooms. This tool which throws a black pencil-like shadow line for straight line sawing now has a new type 1000 watt lamp which assures longer service and 1/3 greater lumen output.

The new design of the Guide Line Light now makes it possible to cast a multiple number of shadow lines, from one to five, which is said to be ideal for gang rip saw operations.

Abrasive Belt Splicer

An easy to use abrasive belt splicer, which will splice any type of abrasive belting in two minutes, is available from Econaway Manufacturing Company, Dept. W., 722 North Main Street, Bellevue, Michigan.

The machine consists of a skiver, rigidly built of mild, hot pressed steel. It is precision built to close tolerance, with a heavy ball-bearing arbor. The Cutting and Gluing Press is made of steel rigidly built and well finished.



New Type Conveyor

Lyon Metal Products, Inc., with general offices at Dept. W, Aurora, Ill., and manufacturing plants in Aurora, Ill., and York, Pa., is manufacturing a new type of conveyor designed to overcome almost any installation problem with only three units—straight sections, 90 degree curved sections, and adjustable trestles.

Balanced rollers rotate on full length cold rolled steel shafts fitted with ball bearings. Shafts retain alignment and cross channels prevent frame from spreading under heavy loads. Rollers are spaced on 4 inch centers for maximum bearing surface

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- Fittings
- Door Carriers
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- Motors
- Kiln Paints
- Pedestals
- Moisture Meters
- Traps
- Bearings
- Desuperheater Spray
- Spikes, Bolts, Clips

If you have a parts problem write Dept. W-5 for complete information.

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4000 W. MARGINAL WAY - SEATTLE 6, WASH
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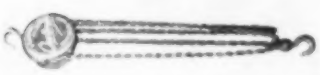
and are raised ¾ inches above frame to accomodate packages wider than conveyor.



New Spur-Gear

The Challenger, a spur-gear hoist incorporating new design innovations, is now in production in ½- and 1-ton capacities, according to the manufacturer, Coffing Hoist Company, Dept. W, Danville, Ill. The entire unit, including standard length of high-strength coil chain for an 8 ft. lift, weighs only 39½ lbs., thus is easily moved from one place to another, as needed.

Strength and unusual resistance to shock-load breakage are said to be gained by the use of formed steel plate in the housing in place of the more common cast aluminum alloy. To further check and confirm its strength, every Challenger is tested at 100 percent overload as it comes off the production line.

Gauge for Checking Circular Saw Teeth

An accurate indicator for checking the set of circular saw teeth is now announced by PTI, Incorporated, Dept. W., 401 Broadway, New York, originators of the PTI Safety Circular Saw Blade.

This new dial gauge enables instant checking within .001" of the set of any type of saw blade tooth—rip, crosscut, conventional or safety types.

. . . out of your Glue Mountain

No problem is a little one—when it's our own! And if you have a glue problem that looks like a mountain to you, our only hope is that you'll let us help you make a molehill out of it.

National Casein Company has tackled lots of "glue mountains" in its day—both casein and resin adhesives—and for every known industrial application, from furniture to airplanes.

NCC has glues for all types of woodworking. Sash and door, joint work, millwork, corestock, doweling, bending, plywood, dimension stock, etc.

Whatever your glue needs—tank car, tank truck or drums—we have a service plan to meet them. Your inquiry incurs no obligation. Contact office nearest you.

National Casein

No Glue Problem—Casein or Resin—is too Little, too Big, or too Tough!

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New Automatic Spotpinner

The Model AK-12 Spotpinner has been developed to drive the familiar round 12 gauge sashpin, the standard size used for generations to pin mortise and tenon joints.

The Spotpinner is built for heavy duty production line use. Its double capacity magazine fully loaded is completely contained within the molded frame which is light weight and virtually indestructible. For further information write to Spotnails, Inc., Dept. W, 1218 Sherman Avenue, Evanston, Ill.

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Only the best saw sharpening can give you top-speed production. The Foley Saw Filer quickly puts old saws with dull and irregular teeth back in perfect condition—and keeps them perfect! 25% to 40% increase in production is frequently realized with Foley-filed saws.

ONE machine files crosscut circular saws, band saws, hand saws.

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permits you to use a Foley Saw Filer in your own shop. You can't lose on this offer—write or send coupon.

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Natural-rubber* treaded

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Non-slip grip, wet or dry; extra protection against cuts; and 5 to 10 times longer wear

Rubber-Treaded wearing surface wears like a tire. Far outlasts higher priced leather.

Non-Skid: Rough surfaced, waterproof rubber grips firmly, safely, easily—wet or dry.

Strong, Comfortable Fabric lining and back. Feels like any canvas glove. Flexible.

Big, Full Hand Size with elastic on back to fit snug on any hand.

The ideal glove for woodworkers and lumbermen

* ***Also NEOX (reinforced neoprene) and plastic coatings, over-all or palm-and-thumb only. Gauntlet, safety cuff and knitwrist styles.***

Smart management supplies good work gloves

Safer, more comfortable coated-fabric gloves speed work handling, reduce lost-time accidents, improve comfort and job attitude. *And cost less because they wear far longer.*

Edmont Mfg. Co., 1268 Walnut St., Coshocton, O.
World's largest maker of coated industrial gloves

ESTABLISHED 1883

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Birch—Oak—Walnut—Maple—Mahogany

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Teak—Japanese Oak—Japanese Birch

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Immediate shipment from large stocks—4/4 to 16/4—on our yards, or direct shipments from the Islands to any U.S.A. or Canadian Port.

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5000 CRITTENDEN DRIVE LOUISVILLE 9, KY.

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Delmhorst Moisture Detector, Model RC-1

AN EASY, ACCURATE WAY TO MEASURE MOISTURE CONTENT OF ANY WOOD PRODUCT

- **Measures moisture content from 6-65% within three ranges: Kiln dry (6-12%); Air dry (12-22%); and Green (22-65%).**
- **Measures average moisture content and distribution of moisture.**
- **Direct reading in percentages on large 4½ inch dial. No conversion tables required—no calculations to make.**
- **Interchangeable electrodes for multi-purpose use.**
- **Ideal for dry kiln testing—wet cores can be tested without cutting lumber.**

Write for complete information

DELMHORST INSTRUMENT COMPANY
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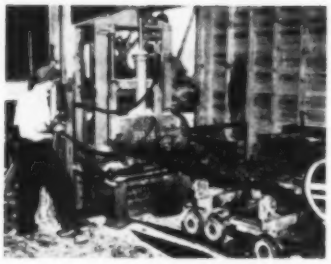


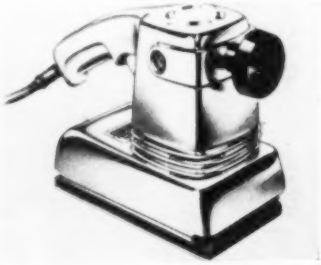
New 25 Inch Gangsaw

A new gangsaw mill has been put into operation at the plant of D. Porter & Son, Stellarton, N.S. The gangsaw, which was built by Dominion Bridge Co. Ltd., Dept. W, Vancouver, B.C., has shown on recent tests, an over-run of approximately four times that experienced previously.

Pattern Stapling Cleaters

A new bulletin illustrating several sizes of cleat stapling machines has been released by Saranac Machine Company, Dept. W, Benton Harbor, Michigan.

Designed to staple crate sections in any pattern, simple or complex, the machines are also adjustable for fastening any number of cleats and slats. In one stroke of the driving heads, the units manufacture, drive and clinch their own staples directly from wire coils of standard gauges.



Low Priced Sander

Porter-Cable's newest Guild Sander, Model 106, is said to be the answer to the finishing problems of cost-conscious builders, carpenters, home owners, auto body workers, boat owners, and maintenance men. The new machine is not only powered by a heavy duty Universal motor, but its simple, gearless design eliminates costly servicing problems common to more intricate sanders.

Leveling taped wallboard joints, smoothing plaster, finishing doors and built-in cabinets and all prepainting preparation are only a few of the building tasks which the new sander is designed to perform quickly and efficiently.

For further information on this new product, write Porter-Cable Machine Company, Dept. W, Syracuse, New York.

New One-Man Chain Saw

Just announced is Disston's DO-101 one-man chain saw, a streamlined, silver colored, and said to be a greatly improved variation of the DO-100. Among the new features are the low-profile DF chain, more rugged crankshaft, and a narrower rail in greater variety of lengths.

Complete details can be had from Henry Disston & Sons, Inc., Dept. W, Tacony, Philadelphia 35, Pa.

Efficient System makes

Permawood
HARDWOOD PLYWOOD

Thirty-three years study, and the application of our findings, has brought system and efficiency in every operation in the production of PERMAWOOD Hardwood Plywood. It is a better product!

This new deck system is employed to handle, clip, sort, and grade green veneer from the lathe.

We make PERMAWOOD panels in standard sizes, in all veneer construction from 3/20" to 1-1/16" thick, and in lumber core construction in 3/4" and 13/16" thickness. Widths manufactured are from 30" to 48"; and lengths from 36" to 96".

Write for latest stock lists and prices.

DARLINGTON VENEER CO., INC.

Established and in continuous operation since 1918

Darlington, South Carolina

FURNITURE
CABINET
PANELING
HANDLE
BRUSH BACKS

●

FIRM ASH
CABINET ASH
TOUGH ASH

PURE WHITE ASH STOCK

The Atchafalaya Basin of Louisiana produces the most uniform white ash for color and texture in America. That's why the finest manufacturers use Port Barre White Ash.

Large and well assorted stocks are ready for immediate mill shipments at all times. We can meet your exact needs, all thicknesses and grades 5/8" to 12/4". Prompt attention will be given to your inquiries.

The Port Barre Lumber Industries, Inc.

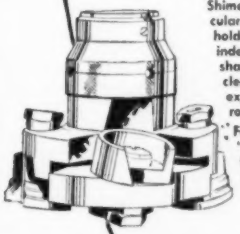
Manufacturers of Southern Hardwoods
Port Barre, La.

UNIFORMITY OF SASH PATTERN IS YOURS... INDEFINITELY

when you use

SHIMER SASH HEADS
WITH LONG-LIFE CIRCULAR BITS

• *you can produce and re-produce sash moulding patterns without a variation —with hundreds of different patterns possible by simply changing mould bits!*



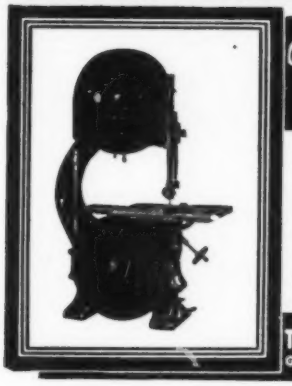
Shimer's exclusive ready-moulded circular bits are clearance protected and hold the shape of the sash pattern indefinitely! They're quick, easy to sharpen and designed for all-around clearance cut! Heads are made with expansion feature for wider or narrower square!

For long production runs or short "duplication runs", you'll pocket extra profits when you cut your sash mouldings the economical Shimer way —regardless of the pattern! Let us give you complete information . . . there's a Shimer Cutter Head for every cutting problem!

WRITE FOR YOUR FREE COPY OF OUR ILLUSTRATED PATTERN BOOK!

SAMUEL J. SHIMER & SONS, Inc.
7 RACE STREET • MILTON, PENNA.

SHIMER



Tannewitz
HIGH SPEED BAND SAWS

Saws faster, smoother and easier than conventional band saws. Regularly increase production from 50% to 100% with consequent reduction of costs. Built by sawing machinery specialists. Write for circular.

THE TANNEWITZ WORKS
GRAND RAPIDS 4, MICHIGAN

"SPECIFICATION" CUSTOM KILN DRYING

the usual and the unusual in custom kiln drying for—
Aircraft, Technical and other exacting or Regular uses . . .

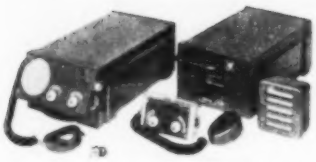
• The finest in Specification drying of Western woods, Hard and Soft Domestic and Imported Woods

Resawing, Surfacing, Pattern Cuts, Smooth-end trim. Save on dry freight weight vs. green. Pattern items cut waste, freight, Transit rates on R. R. shipments. Delivered, ready to use—Saves manpower, time.

5 automatic c.c. kilns operated by trained, experienced kiln engineers, drying up to 50' lengths, up to 6" thick.

WRITE FOR INFORMATION ON SPECIFICATION KILN DRYING • NO OBLIGATION

LUMBER MANUFACTURERS INC.
Cable Address: Lumac
Long Distance—SU 1101
for Gordon Walkman, Pres.
2536 S.E. STEELE ST. **PORTLAND 2, OREGON**



Two-Way Radio for Industry

A new low-power 2-way radio that utilizes the Uni-Channel Sensicon receiver has been designed by Motorola to meet the accelerating demand of industrial radio installations.

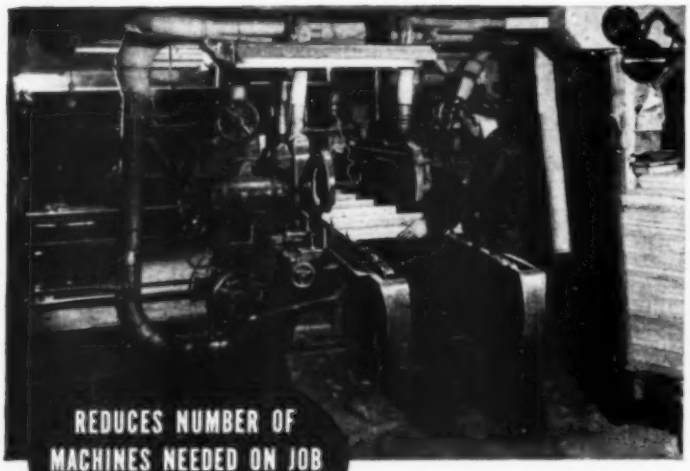
The unit meets F.C.C. regulations that allow a maximum power input of 3-watts to the final amplifier for those industries where all 2-way radio communications are carried on within a single plant area. Complete information may be obtained from Motorola, Inc., Dept. W, 4545 W. Augusta Blvd., Chicago 51, Ill.

AFPI Publishes Lumber Story

"The Story of Lumber and Allied Products" is a new, 16-page publication released by American Forest Products Industries. The authors of the booklet point out that trees are a crop—a crop that can be grown over and over again on the same land.

The reader is taken through the steps involved in harvesting the wood crop and turning it into the numerous finished products. Sustained yield operations, selective cutting, scientific forest management, tree planting, forest fire prevention programs—all these are explained in this publication.

AFPI is making this booklet available free of charge to members of the industry for their distribution. Space is provided for company imprints. Orders are being filled at 1319 Eighteenth Street, N. W., Washington 6, D. C.



. . . Greenlee Double-End Tenoner

"At the time we purchased this machine, we were running quite a large job which required three mitre saws, a double cut off saw and five shapers. Within one week after the Greenlee Double-End Tenoner was put into operation, the machines necessary on this job were reduced to one mitre saw and one shaper.

"In addition to this saving, our Cabinet Room output jumped more than 20% due to more perfect fitting or precision machining and a much improved general appearance of product."

That's what Mr. H. L. Hubbell of H. L. Hubbell Manufacturing Company, Zeeland, Michigan says about the versatile Greenlee Double-End Tenoner.

Here is just another example of the many important savings and production benefits a Greenlee Double-End Tenoner makes possible . . . from the machine room on through the cabinet and finishing rooms.

For, as a "woodworking plant in itself", it literally reaches out after extra work. It steals job after job from single-purpose machines . . . draws into itself scores of different, difficult jobs . . . to bring about new efficiencies, welcome cost reductions and superior finished work.

Write today for Bulletin 545 with complete details. Greenlee Bros. & Co. 1931 Twentieth Ave., Rockford, Illinois, U.S.A.

MACHINERY & TOOLS
GREENLEE

GREENLEE WOODWORKING MACHINERY MORTISERS • BORERS • SAWS • TENONERS • PLANERS • SHAPERS • MORTISING & BORING TOOLS

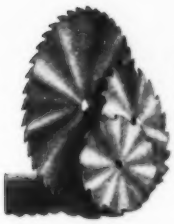
Gauge for Planer Knives

The first really practical gauge for permitting quick, accurate measurement and adjustment of Planer, Jointer, Shaper, and Router Knives is just announced by PTI, Incorporated, Dept. W, 401 Broadway, New York City.

This new PTI gauge, is shown being used to check the knives of a Jointer and Spindle Shaper. Another unusual feature is that the dial gauge can be unmounted from the arm and used separately for checking the set of circular saw teeth.

Tandem Type Paint Heater

A low cost, Tandem Type Paint Heater—the first production lacquer heating unit to list under two hundred dollars—designed for hot spray technique in applying all types of protective coatings such as lacquers, enamels, varnishes, paints, priming and surface compounds is now being marketed by Dualheet, Inc., Dept. W, Cleveland, Ohio.



Cut Costs
WHEN CUTTING
WOOD OR PLASTICS

MEYCO

CARBIDE TIPPED CIRCULAR SAWS ARE ENGINEERED FOR TUNGSTEN CARBIDE

MEYCO carbide tipped saws are in a class by themselves, because the blades have been engineered for the addition of the carbide cutting teeth. It is this engineering know-how of building a carbide tipped saw from the ground up, that has made the MEYCO circular saws unique . . . that has accounted for repeat orders and a customer satisfaction of which we are justly proud.

VIBRA-FREE*

THE NEWEST THING IN CIRCULAR SAWS

Vibra-Free* dampers make it possible to distribute the stresses and strains inherent in every blade MORE EVENLY, thus producing an even better carbide tipped saw than has been possible heretofore. Vibra-Free* dampers absorb the sound waves set up by the motion of the saw, thus doing away with the objectionable, high-pitched whine, plus the rough cut produced by vibration.

Write for new catalog describing these Meyco Saws in detail.

*T. M. Reg. U. S. Pat. Off.

W. F. MEYERS CO., INC., BEDFORD, INDIANA

WANTED!
Adhesive Problems

Our Laboratories are anxious to work on adhesive problems which others have failed to solve.

We have developed adhesives for

Plastic	**Glass**	**Leather**
Fabric	**Pliofilm**	**Plywood**
Tinfoil	**Brakes**	**Aquariums**
Paper	**Metal**	**Cellophane**
Rubber	**Cork**	**Concrete**

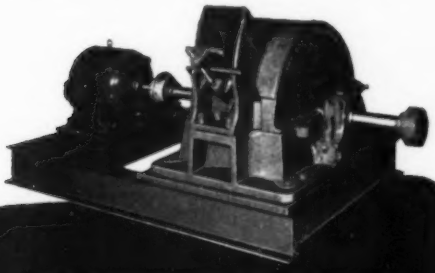
and many other materials.

Write us if you have an adhesive problem. Samples will be submitted without charge.

ADHESIVE PRODUCTS CORP.
1660 BOONE AVE., NEW YORK 60, N. Y.
ESTABLISHED 1895

M & M utilization equipment

For hardboard manufacturing



Let M & M Disposal Equipment turn your waste into profits. These machines are built in many types and sizes for slabs, edgings, trim, blocks, veneer, bark, and other combustible waste. Don't overlook the extra dollars that can come from utilizing every available bit of waste. Send us your problem and we'll show you how M & M Disposal Equipment can solve it.

MITTS & MERRILL
1018 South Water • SAGINAW, MICHIGAN

PORTRAIT OF PROGRESS

The W. T. Smith Lumber Company, with one of its mills shown here, is a well known example of progressive, efficient operating methods. Selective cutting, conservation and emphasis on quality has built this company into one of the South's largest.

Sixty-seven years of experience, modern plants and a permanent source of supply mean that you always will profit when you use the quality service and lumber production of W. T. Smith.

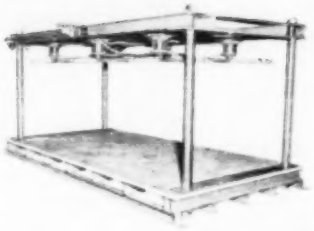
Selective Cutting Assures Permanent Supply

W. T. SMITH LUMBER CO.
CHAPMAN, ALABAMA
67 YEARS OF MANUFACTURING YELLOW PINE AND HARDWOODS

Western Red Cedar Booklet

"Where to Use Western Red Cedar Lumber", a new 16-page species book, has just been published by the West Coast Lumbermen's Association. Many uses of this wood are described in detail. Included is a grade use guide for the more generally used items.

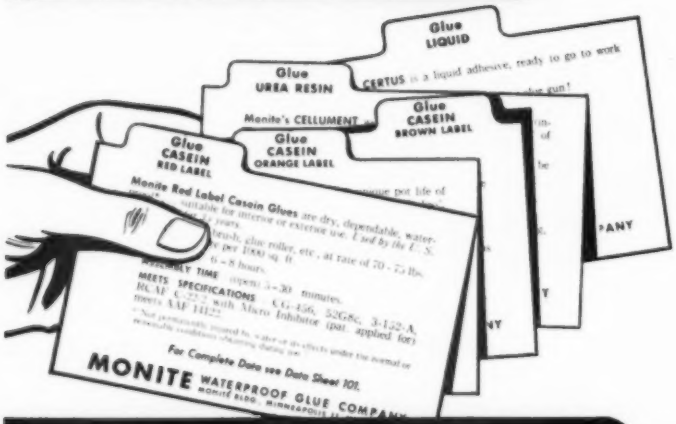
Lumber dealers can obtain quantities for their customers without charge by requesting the number needed from West Coast Lumbermen's Association, 1410 S. W. Morrison, Portland 5, Oregon.



Flush Door Assembly Press

The Union Tool Corporation, Dept. W, Warsaw, Indiana, has designed and is now in production on a new inexpensive flush door assembly press. This new Union press is made specifically to meet small production requirements in assembling veneer panels to hollow core frames. The top platen is pneumatically operated and is said to provide positive sustained pressure throughout the glue-setting period.

there's a MONITE GLUE....



to solve your GLUING PROBLEM!

WHAT ARE *YOU* GLUING? Is it furniture . . . plywood . . . laminated structural members? Whatever it is . . . if you want maximum strength, water resistance, top speed production and lower manufacturing costs . . . there's a Monite Glue especially designed to solve *your* gluing problems.

LIQUID, RESIN and CASEIN—all members of the famous Monite family of quality adhesives—are available now to meet your requirements for water resistance, working life, joint strength, application ease, hot or cold bonding, etc.

Gluing Problems . . . whether specific gluing applications or general glue room operation . . . it will pay you to draw on our 35 years' experience in development and manufacture of glues. Send us your problems—there is NO OBLIGATION.

H. L. Prestholdt, President

MONITE WATERPROOF GLUE COMPANY
1628 NORTH 2ND, MINNEAPOLIS 11, MINNESOTA

Wire Spool Adapter

This new spool is claimed to convert any type of stitching machine, (Automatic, Manual, Seam, Bottom, Metal, Sword or Straight Arm models), to use 25 lb. coils. More important, however, is that it is said to maintain accurate control of the wire every second the stitcher is operating. It guides and feeds the wire in a smooth, steady flow to the stitching head, preventing "jam-ups" within the head, kinks or snarls and other costly delays. Complete information may be had by writing to the Inland Wire Products Co., Dept. W, 3947 South Lowe Avenue, Chicago 9, Illinois.

Square Saw Blade

Claimed to be the most revolutionary departure in saw blades design, a complete line of square blades has been introduced by Clark & Sawyer, Inc., Dept. W, 602 Mateo Street, Los Angeles 21, California. Operating on

an entirely new cutting principle, the blade, known as the Squared-Circle Saw Blade, is said to handle all types of cross-cutting and rip sawing faster than the conventional type circular saw blade. The Squared-Circle Saw Blade is actually a square with a series of scientifically-designed teeth located at each corner of the square. The absence of teeth along the sides of the square means that there is very little friction during the cutting operation.

New "Handie-Talkie" Set

A new version of the Motorola "Handie-Talkie" portable F.M. radiophone that incorporates an adjustable squelch is being introduced by Motorola.

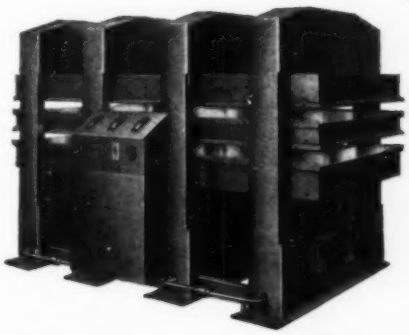
The squelch reduces the annoyance of tube and circuit noises normally encountered in an F.M. receiver in the absence of a signal. The squelch control, mounted on the power supply chassis, provides a normal operating range of no-squelch up to 25 to 50 db noise reduction.

Any possible audio distortion resulting from the portables being used in fringe areas is eliminated as a result of the addition of the adjustable squelch. For more information, write Technical Information Center, Dept. W., 4545 W. Augusta Blvd., Chicago 51, Ill.

Electric Car Puller Catalog

A new catalog, recently released by American Hoist and Derrick Company, describes their complete line of Electric Car Pullers and provides many suggested uses for this versatile piece of equipment. A copy of catalog No. 100-H-66 can be obtained by writing the company at Dept. W, St. Paul 1, Minnesota.

the modern design



for increasing production of your veneering and laminating operations

The New

VB *hot press*

Check ALL these "Years Ahead" features that give you . . . . .

ACTUAL PRODUCTION ADVANTAGES

The modern design of the "VB" Press gives you savings in glue, veneer and labor. After-drying storage space is eliminated and the smoother surface of panels produced eliminates sanding and finishing costs. Compactly constructed, the "VB" Press requires no pit; giving the user a wide choice of placement for more efficient production.

Write for Illustrated Bulletin

"VB" Hydraulic Presses are available in single, two, three or four openings.

- ALL ENCLOSED FRAME
- ALL WELDED STEAM HEATED PLATENS
- PRE-ADJUSTED WORKING PRESSURE
- COMPACT HYDRAULIC SYSTEM
- AUTOMATIC CONTROL PANEL

V.B Berthelsen ENGINEERING WORKS, INC.

P. O. BOX 1423 • LOCKPORT ROAD • JOLIET, ILLINOIS

FAMOWOOD . . . *the AMAZING* . . .

ALL-PURPOSE PLASTIC for wood finishes!

Applies like putty . . . Sticks like glue!

FAMOWOOD is the answer...where wood finishes are important. Simple to use...efficient, lasting, time-saving, when filling wood cracks, gouges, nail and screw holes or correcting defects. Dries quickly, does not shrink. *Stays put* under adverse conditions. FAMOWOOD sands easily, does not gum up sander. *Takes spirit dye stains freely.* Waterproof and weatherproof when properly applied. Ready to use—*"right out of the can."* Fifteen matching wood colors ...with amazing matchless wood finishes.

USED BY FURNITURE MFGS • SASH AND DOOR MFGS • CABINET MAKERS • CONTRACTORS • BOAT BUILDERS • PAINTERS • AIRCRAFT PLANTS • PATTERN SHOPS • HOME BUILDERS • ALL WOOD PRODUCTS

FAMOWOOD descriptive literature & price list on request. Distributor & Dealer inquiries invited, write Dept. WP-11

BEVERLY MANUFACTURING COMPANY 9118 SOUTH MAIN STREET LOS ANGELES 3, CALIF.

Manufacturers of...FAMOWOOD • FAMOGLAZE • FAMOSOLVENT

Names... Events

Retirements

GEORGE E. HECK, for 34 years a research engineer in wood construction at the U. S. Forest Products Laboratory, Madison, Wis., has announced his retirement to enter private consulting work in engineering.

Promotions

WALTER MCCARTHY, senior salesman for the Detroit area for the Wood Conversion Co., St. Paul, Minn., was appointed District Sales Manager of the Detroit Office.

JOHN P. SCHLICK, Treasurer of the United States Plywood Corporation, has been elected a director of the Corp.

JAMES B. WISEMAN, for the past five years Manager of the Industrial Relations Division of the E. L. Bruce Co., Memphis, Tenn., has been appointed Assistant to the President.

JAMES R. TURNBULL, General Sales Manager of the Monsanto Chemical Company's Plastics Division, Springfield, Mass., has been given a temporary leave of absence to work on special polymer marketing problems for the company's Executive Committee.

EDWARD J. MAHONEY, a director of the United States Plywood Corporation, New York, N. Y., has been appointed a Vice President of the company.

JOHN C. EWER, Assistant General Manager of the Norton Grinding Wheel Co., Ltd., Welwyn Garden City, Herts, England, has been appointed Managing Director of the company.

ROBERT F. JOHNSON was named President and a member of the Board of Directors of the C. D. Johnson Lumber Corp., Portland, Ore. Other executive changes include: ROBERT E. FLOWERREE is appointed Vice President and Sawmill Division Manager; L. H. MCREYNOLDS is now Vice President in charge of allocating of shipping; C. D. JOHNSON, JR., is the firm's new Secretary - Treasurer; CARL C. JACOBY appointed member of the Board and in charge of the corporation's logging and forestry operations; GEORGE R. BIEKELUND of Baker Fentress & Company of Chicago fills the newly created position of Chairman of the Board.

DONALD L. BRALEY, former head of the United States Plywood Corporation's San Francisco branch, was named manager of their newly-built Los Angeles distribution unit. JACK KAEFER, salesman for the company, was named manager of the San Francisco distribution unit.

WILLIAM V. SHAKESPEARE has been promoted to Sales Manager of the Thor Export Sales Division, New York, N. Y., of the Independent Pneumatic Tool Co., Aurora, Ill.

New Jobs

ROBERT L. LANDON, Manager of Industrial Relations of the Rohm & Haas Co., Philadelphia, Pa., has been appointed to serve as a member of the Appeals and Review Committee of the Wage Stabilization Board.

ROLAND E. SCHOENIKE, a 1951 graduate of the University of Minnesota School of Forestry, has been

For 3-way satisfaction

■ EXPERT PRODUCTION!

■ CAREFUL HANDLING!

■ DELIVERY TO YOUR DOOR!

STEWART

HARDWOOD DIMENSION

GLUED-UP OR SOLID

You can rely on STEWART for exacting end work, for accurate tenoning, for a smooth finish that often requires no sanding. Fast delivery service in the Mississippi valley. Write, wire or phone STEWART for your next dimension quotation.

E. A. STEWART LUMBER COMPANY, INC.

KILN DRIED HARDWOOD DIMENSION • HARDWOOD FLOORING • HARDWOOD TIMBERS

PHONE 3-5137 TEXARKANA, U. S. A.

Indiana Representative: Fred H. Stanford Co., 3376 East Washington Street, Indianapolis

Speed Production WITH COLPRES 10 GLUE

With Colpres 10 a furniture manufacturer of cherry and maple colonial spool beds now glues in ½ work day what formerly required 24 hours and 2 shifts.

Hardwood or softwood parts glued with Colpres 10 are ready for machining in ten minutes.

Colpres 10 is a quick setting, two part, room temperature urea resin adhesive. It is water resistant, non-staining, and is unsurpassed for strength and its cold, quick setting characteristics.

Send us this ad clipped to your letterhead for copy of our technical bulletin and free sample of Colpres 10.

TIMELY SUGGESTION — Have our Laboratory test your glued wood parts for meeting Government and industrial specifications for strength, moisture resistance, etc.

TIMBER ENGINEERING CO.
1319 18th ST., N. W., WASHINGTON 6, D. C.
W

You Need?

Wood Products—

Boxes, all types
Shooks
Shipping crates
Plugs, panels, heads
Paper mill supplies
Pallets
Containers
Finshed or semi-finished
Cut-to-size stock, dimension

EASTERN SOFTWOOD LUMBER

If so, send us your specifications for our quotation. And you will see our prices are right.

All shipments made direct from our new modern factory.

EASTERN SOFTWOODS LTD.
GARNEAU JUNCTION
P.Q. CANADA

awarded the Minnesota and Ontario Paper Company Graduate Research Fellowship in Forestry for 1951-52.

OLAVI J. WARPULA has been appointed Resident Demonstrator for the Grinding Machine Division of the Norton Company, Worcester, Mass.

CARL H. STOLTENBERG has been appointed Assistant Professor of Forest Economics in the Duke University School of Forestry, Durham, N. C.

DUANE L. KENAGA of Cadillac, Mich., has joined the Wood Preservation Laboratory of The Dow Chemical Company, Midland, Mich.

J. S. WALLACE was appointed Industrial Products Salesman for the Chicago area by the Wood Conversion Co., St. Paul, Minn.

RICHARD NORDBY is named factory sales and service representative for the Chicago area for the Onsrud Machine Works, Inc., Chicago, Ill.

Associations

The WESTERN PINE ASSOCIATION, Portland, Ore., appointed three new field representatives, as follows: ROBERT E. STERMITZ for the Texas, Oklahoma and eastern New Mexico territory; ROBERT A. CROWE for the middle Atlantic states of Pennsylvania, New Jersey, Delaware and Maryland; MALCOLM S. WHITE to cover Illinois and Wisconsin.

The WOODEN BOX INSTITUTE, San Francisco, Cal. announces the election of C. O. "Bill" THOMPSON as Secretary.

NATIONAL PLYWOOD DISTRIBUTORS ASSOCIATION will hold Fall Sectional meetings as follows: Eastern—November 12, 1951, Commodore Hotel, New York, N. Y.; Southern—November 17-20, 1951, The Glades Hotel, North Redington Beach, St. Petersburg, Fla.

WOODICTIONARY

SLICED VENEER

Veneer which is literally sliced off the log or bolt by moving the log or flitch against a large knife.

LUMBER
Southern Hardwood—Cypress—Yellow Pine
Ample Kiln Capacity

DIMENSION
Edge glued or solid
Machined to specifications

PLYWOOD (Hardwood)
Hot Plate or Cold Press

FLOORING
Oak, Beech, Pecan

HANDLES
DOWELS

VENEER (Hardwood)
Rotary cut only

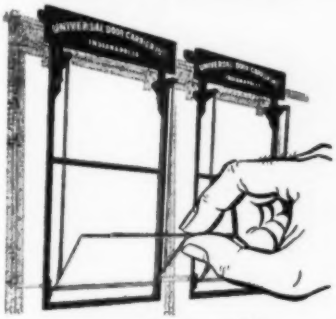
OAK TREADS
Thresholds—Mouldings—Cedar Closet Linings

BOX MATERIAL

Your Inquiries Invited

ANDERSON-TULLY COMPANY
P.O. BOX 28 • Memphis 1, Tenn.

Handle Dry Kiln Doors
SINGLE-HANDED?



You can do it with
***The Universal* DOOR CARRIER**

One man—with one hand—and a Universal Carrier can open or close a kiln *in a few seconds.* And the carrier makes your doors last longer!—by gentler handling, without twist or strain. Automatic locking gives you good tight closures every time.

Write for further facts!

***Universal* DOOR CARRIER, INC.**
1117 Cornell Avenue
Indianapolis 2, Ind.

Finished Dimension

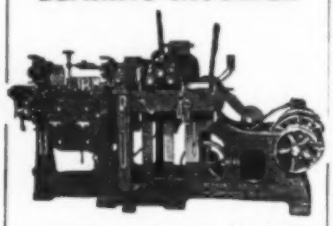
We have some open time in one of our mills for orders for finished, ready to assemble dimension stock.

This can be made from either hardwoods or pine. Interested?

Send us your requirements and specifications today.

L. N. BAGNAL
P. O. Box 2896 Tel. 8115
Winston-Salem 1, N. C.

HERMANCE NO. 60 HIGHSPEED BALL BEARING MOULDER



A modern machine for the Rapid and Accurate production of Small Mouldings or for four side planing. Ideal for detail work. Quick to set up. High spindle speed, 5400 RPM, means fine one-knife finish at fast feeds. Handles stock from the smallest to 6" wide and 3" thick; bed drops 16" for running wide stock on edge. For fast feeds it can be furnished with four knife heads, knife jointers, electric grinder and automatic hopper feed. The low initial cost and many advantages of this machine will appeal to you.

Write for Detailed Bulletin

HERMANCE
MACHINE COMPANY
Williamsport, Pa.

The WESTERN PINE ASSOCIATION, at their semi-annual meeting in September in Portland, Ore., made certain changes and additions in their grading rules. Supplements, of the same size as the Standard Grading Rules book, are available.

THE WOOD PRODUCTS DIVISION OF THE ASME is holding its fall meeting Monday, November 26, at the Chalfonte-Haddon Hall Hotel, Atlantic City, N. J. Morning session starts at 9:30 A.M. afternoon, 2:30 P.M. For details write Fred Wangaard, Yale University School of Forestry, New Haven, Connecticut. This promises to be one of the best forest products meetings to be held this fall.

Miscellaneous

The 23rd EXPOSITION of CHEMICAL INDUSTRIES will be held in the Grand Central Palace, New York, N. Y., November 26 to December 1, 1951.

E. I. du PONT de NEMOURS and Co., Inc., Wilmington, Del. announces the creation of an Organization Planning Division within the Employee Relations Department to inaugurate a sound program to insure the availability of sufficient competent, well-trained personnel to fill future managerial openings within the company.

The NATIONAL ASSOCIATION of HOME BUILDERS, Washington, D. C. said that its 25,000 members throughout the country are ready, willing and able to build the necessary military housing as soon as the Congress gives the Federal Housing Administration the go-ahead sign for defense housing.

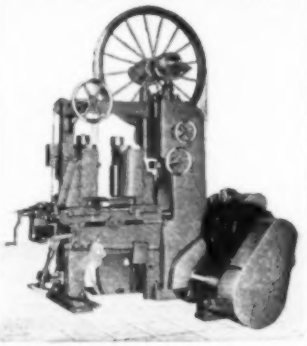
AMERICAN CYANAMID COMPANY announced that it has consolidated its several office and warehouse locations in Los Angeles, Cal. into one newly-constructed building at 2300 S. Eastern Ave.

GREAT LAKES PLYWOOD, INC., a division of Plywood, Inc., has expanded its facilities in the Chicago area with the opening of its new offices and warehouse at 2333 S. Halsted St. JOHN G. "Fritz" FELKER is the manager.

U. S. FOREST PRODUCTS LABORATORY, Madison, Wis., will conduct the twenty-fifth of a series of wood-seasoning demonstrations November 5-16, 1951. The principal subject will be in the field of kiln drying of hardwoods and softwoods.

HEYDEN CHEMICAL CORP. and SHAWINIGAN CHEMICALS, LTD., subsidiaries of the Shawinigan Water and Power Co., of Montreal, Canada, have decided to form a new Canadian

McDonough 44"
Vertical Band Resaw



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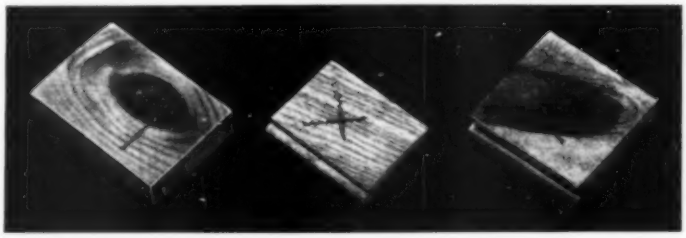

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High Level Maintained in Container Production

Slight softening of demand enables manufacturers to partially replenish depleted materials inventories

In the middle of the second quarter, a slight softening of demand was noted for practically all types of containers, according to the current industry report of the United States Department of Commerce. In the face of declining demand, production was maintained at a high level which resulted in the cutting into the backlog of orders and the rebuilding of virtually nonexistent finished inventories. In addition, record output by the basic raw material industries enabled many container manufacturers to partially replenish their depleted raw materials inventories.

Wooden Containers

Production of wooden containers was above the second quarter of 1950 but, generally, slightly below the first quarter 1951 level.

Several container plants were destroyed or made inoperative as a result of either fire or flood. In addition, a number of plants were shut down to change over to defense work. These situations are regarded as partially responsible for the second quarter decline in production.

The lumber supply situation eased considerably as logging conditions improved. Seasoned lumber was also more plentiful and of a better quality. Wire, nails, rivets, hoops and other metal items remained short although the supply was generally sufficient for current operation.

Demand continued strong and the backlog of orders remained heavy for most manufacturers.

Tight Cooperage

The tight cooperage industry experienced a decrease in the production of beverage barrels and a slight increase in the production of food and chemical barrels. The industry operated at approximately 55 to 60 percent of production capacity.

The hoop steel situation was considerably improved, and practically all firms reported sufficient quantities for current operations. Stave and heading mills were still experiencing difficulties in operation because of high log and timber costs and low ceiling prices.

Wirebound Boxes and Crates

The second quarter business of the wirebound box and crate industry continued at a high level and considerably over the comparable period of 1950.

The backlog of orders continued heavy with the number of "DO" rated orders increasing in the second quarter. Rated order business did not, however, reach a substantial volume. This situation will probably continue through the third quarter although an increase in the rated orders is expected in the last quarter of 1951.

Veneer inventories were at about the same level as a year ago. The difficulty reported in the first quarter of procuring lumber and veneer did not trouble box manufacturers in the second quarter with the improved situation expected to continue through the third. A tightening of the material supply situation, however, is anticipated during the balance of the year starting with the latter part of the third quarter.

Slack Cooperage

A continuation of increased demand for slack barrels and kegs featured the second quarter of 1951 business. Some plants reported operations at near capacity while others were turning out about 50 percent of their possible production. The production of nail kegs, however, was at a higher level.

The stave and heading situation was still tight, although slightly improved because of favorable weather conditions. Inventories of these items were low, but apparently sufficient to meet demand.

Nailed Wooden Boxes and Crates

Production of nailed wooden boxes during the second quarter of 1951 increased over 17% above the previous quarter.

The first six months shipments of wooden boxes and shook was in excess of 11.2% over the same period in 1950.

Demand continued strong. Order backlogs varied considerably in different areas of the country; however, the backlogs were from 30 to 45 days.

(Continued on page 94)

Making the Tight Barrel Head

Here are some hints that will help to ease the difficulty experienced in many plants with "stiff" and "slack" heads in the manufacture of barrels.

by J. B. WAGNER

"Slack" heads are a troublesome occurance in some barrel plants. The question: "what is a "slack" head and why?" is a reasonable one. It is a very difficult subject because there are so many reasons why a barrel head becomes "slack" which must be taken into consideration.

For example, the head in a tight barrel may be comparable somewhat to a drum head, because when a drum head is drawn up stiff and taut, and one strikes it a sharp blow, it gives off a perfect reverberating sound, while if it is at all "slack" it has a tinny, rattling sound.

When a tight barrel contains a croze of the proper width and depth for the thickness of the "head" on the head, this croze has been cut in the barrel to rightly conform to the diameter of the head. This means that the head should be slightly larger than the diameter of the croze cut in the barrel end, so the proper amount of compression will occur when the rivetted head hoop is forced "home". Thus, the open joints in the head will be tightly closed, while at the same time closing the joints in the end of the staves. When the riveted head hoop is a snug fit so that it will rightly complete this compression, only then will it be an ideal fit.

If these conditions do not exist, the head will give off this tinny, rattling sound when struck with a hammer.

An extremely important point to be remembered is the number of pieces in each head. In days gone by, tight barrel heads were made up of about 20 percent two-pieced and the balance three-pieced. Today one rarely sees a two-pieced head, the greater number being four- or five-pieced with an occasional six-pieced showing, and a very small percentage of them three-pieced. This change accounts for the difficulty experienced in tight barrel manufacture. Some barrels contain "slack" heads, while others have heads which are too "stiff" and require "flagging" in the joints of the staves at the "quarter".

The more pieces there are in a head, the more joints there are to be closed or compressed. Therefore, it is clearly evident that a four-pieced head will require more compression to close up all of its joints than a three-pieced. Therefore, when the crozer is adjusted so that the joints in a four-pieced head are tightly compressed, a five-pieced head will be slightly "slack", while a three-pieced head will be somewhat "stiff", and require a certain amount of "flagging" in the ends of the stave joints at the "quarter".

In order to ease this difficulty, sort out the heads into several groups, three, four, five, and six-pieced, and work them up separately, so that the crozer may be adjusted in order to accommodate and properly compress the joints in each lot when used.

Don't Cut Croze Too Deep

The effect of a faulty croze is bad on the final condition of the heads. The most prevalent difficulty occurs when the croze has been cut *too deep*, and the "bead" of the head is not pressed firmly into the back of the croze and thus does not fill the entire croze as it should. The head will appear tight and sound immediately after being put into the barrel, but some time later will become more or less "slack." This type of croze in a barrel will cause leaks to appear in the ends of the staves or through the "chamfer."

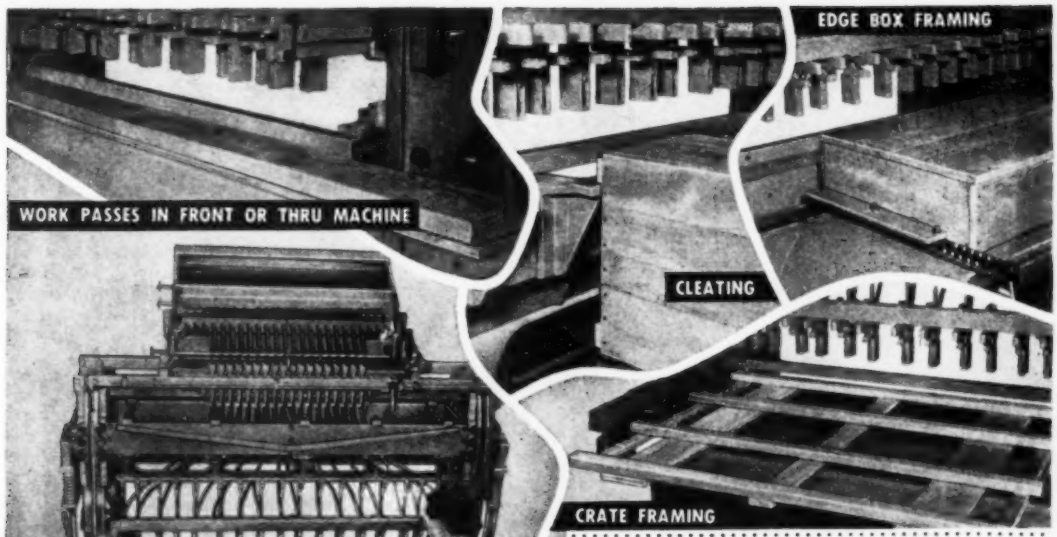
"Slack" heads also occur when the croze has been cut *too wide* for the "bead" on the head, which is caused by the croze knives not being in perfect alignment, or by undue end motion of the cutterhead spindle. As a result, such a faulty croze does not grip the bevel of the head firmly. Such a condition will permit a slight up-and-down movement of the head in the croze. The barrel head will also appear tight and sound immediately after it has been inserted but, in time will become "slack."

Furthermore, a barrel may have a perfect croze, which has been cut to conform properly to the diameter of the head used, but if the riveted head hoop is too large and is not a snug fit it will not draw up the joints sufficiently tight in the staves and in the head.

Three-Piece Head Best

A more definite remedy for eliminating the problem caused by the varying number of pieces contained in present-day tight barrel heading would be for the manufacturers to make all three piece heads. While this would entail a change in manufacturing methods, it could easily be accomplished by making all heading blanks approximately the same width by the tongue and groove method before they are jointed. To hold these tongue and groove pieces together, glue could be spread on the tongue only before it is entered in the groove and then compressed tightly by machine. The joints thus made would be permanent and almost invisible. This would also eliminate the possibility of the glue coming into contact with the contents of the barrel.

Such a change in heading manufacture should not be difficult, as there are machines on the market adapted expressly for this purpose. The extra labor entailed in this change would be more than made up by the labor saved in jointing, matching, and dowelling heading as done by the present method, as well as the saving at the barrel factory in manufacturing a more satisfactory barrel.



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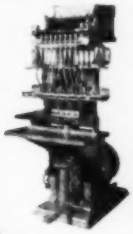

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NM-19

CONTAINERS

(Continued from page 91)

"DO" business was reported as constituting a little less than 25% of this industry output.

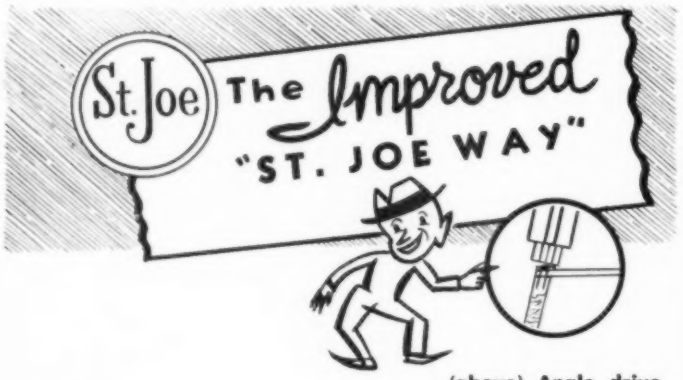
Raw material supply situation eased considerably. This is particularly true in the purchasing of dry lumber. Metals remained tight. Some manufacturers reported purchasing imported nails at premium prices.

Veneer Packages, Baskets and Hampers

The second quarter production and shipments of veneer packages, baskets and hampers increased about 10% over the same period of 1950. This increase resulted from a general recovery of business from previous slack periods. Large crops of fruits and vegetables were primarily responsible for the rise in production.

Plywood Boxes

Plywood box production for the second quarter of 1951 declined slightly from the preceding period. This drop resulted from the closing of several plants during the conversion or changeover period. The workweek was less than 40 hours which was in contrast to a general overtime condition which prevailed at the beginning of the first quarter. Materials situation was tight, although not critical. Direct defense orders accounted for about 25% of the total second quarter business.



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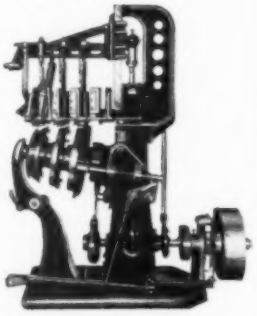
Let us study your fastening problem . . . show how the St. Joe Tub Basket Stapler can improve your present production program or the possibilities of the many other St. Joe Staplers available.

(above) Angle drive permits the use of thinner bottoms, allowing the staples to be driven parallel with the wood bottom—saving material and providing your customers with quality containers.



(above) Model No. 234 Tub Basket Stapler, arranged with form for making Tub Baskets, for full details write for bulletin 5G-2.

1877 St. Joe Machines, Inc. 1951

IT'S ST. JOE TODAY!... FOR STAPLING MACHINERY

ST. JOSEPH MICHIGAN

B & B CLASSIFIED

Wanted: Position as manager or superintendent Veneer mill or box plant, in South preferred. Thoroughly experienced in both, including wirebound, vegetable pkgs. and ammunition boxes, from timber to finished products and at minimum cost. Reply to Box A 170
WOOD TRADING POST

WANTED
First class wirebound superintendent for large industrial wirebound operation. A Louisiana location. Reply Box A 171 WOOD & WOOD PRODUCTS.

Wanted a supervisor in large plywood plant for core mill. Will have charge of product from cars through kilns to glueroom. Send full resume and inexpensive picture or snapshot. Salary expected.
Reply to Box A 167
WOOD & WOOD PRODUCTS

Stimson Lumber Co.
Hickman, Ky.
Manufacturers of Mississippi River Cottonwood and Willow

ANDERSON-TULLY CO.
Memphis, Tenn.
BOXES AND BOX MATERIAL
Box Factory Lumber
Southern Hardwood
Edge glued and solid dimension
Poplar, Gum, Oak or Beech

Box Dies—Steel or Rubber Type —Stock or Custom Strip Printing on Boxes, Cartons and Cases
PIERCE WRAPPING MACHINE CO.
625 W. Jackson Blvd.
Chicago 6, Ill.

Unseen, inside a football, is the vitally important, air-tight inner wall. Equally important to the quality of your whisky is the inner wall of the barrel in which it is aged.

Even a careful look at a football or a barrel may give no idea of the hidden or real value. *It's inside!*

Could you look inside a Blue Grass Barrel you'd always find a uniform "red" layer and char. To be certain of uniformity, firing and charring are electronically controlled. Naturally, you may expect a more uniformly aged whisky.

Precision-built of prime white oak, Blue Grass Barrels are *always* uniformly charred—to your specifications. In addition, by your request, you may have the Blue Grass Patented Efficiency head. Write for details—or plan now to order Blue Grass cooperage.

LOOK FOR THE "B" ON THE RIVETS

it means:

Prime white oak
Thoroughly air-dried
Precision firing
Uniform charring to specifications
Blue Grass efficiency head
Exacting inspection

BLUE GRASS COOPERAGE COMPANY
5000 CRITTENDEN DRIVE . . . LOUISVILLE 9, KENTUCKY

BLUE GRASS BARRELS are used exclusively in the aging of **OLD FORESTER***

*Bottled in Bond, Kentucky Straight Bourbon, 100 Proof

Wood

You believe it?

It requires more than 3100 lineal feet of 1-5/64 x 2-¾ maple stock to construct a bowling alley.

?

Acreage losses from fire on unprotected forestland last year was nearly 27 times greater than on land where some form of organized protection was in operation.

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It is estimated that private land owners, state and federal governments combined, in the last fifty years have hand-planted about 120 million nursery-raised trees on some 240,000 acres in the Douglas Fir region.

?

Forests cover a larger proportion of New England than any other comparable region in the United States.

New York has the oldest unbroken state forest administration in the United States, founded in 1885.

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The largest Douglas Fir tree ever logged contained 36,000 feet of timber—enough to build seven five-room houses.

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The second hardest of all native American woods, the maple, is used for manufacturing nearly everything from airplanes to xylophones.

Do You Need?

Gum or Poplar Plywood
Single Ply Rotary Cut Veneer
Glued-Up Lumber Core Stock
Dimension, Kiln Dried and Semi-Finished
Crates—Skids, Nailed or Stock Cut to Size
Box Shooks or Assembled Boxes
Southern Hardwood Lumber
(Air Dried, Kiln Dried—Rough or Surfaced)

If so, send us specifications covering your needs. Our SERVICE, backed by nearly FIFTY YEARS EXPERIENCE, will please you. ASK YOUR FRIENDS.

The Frank A. Conkling Co.

Memphis 3, Tennessee

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- *Available from 6 to 20 Tracks—From 20" to 60" Working Widths*

Write us for attractive quotations . . . Information on Box Board Rotary Printing Machines on request

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Shooks - Nested Barrels - Cooperage Stock

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INCREASING
VENEER
DEMANDS
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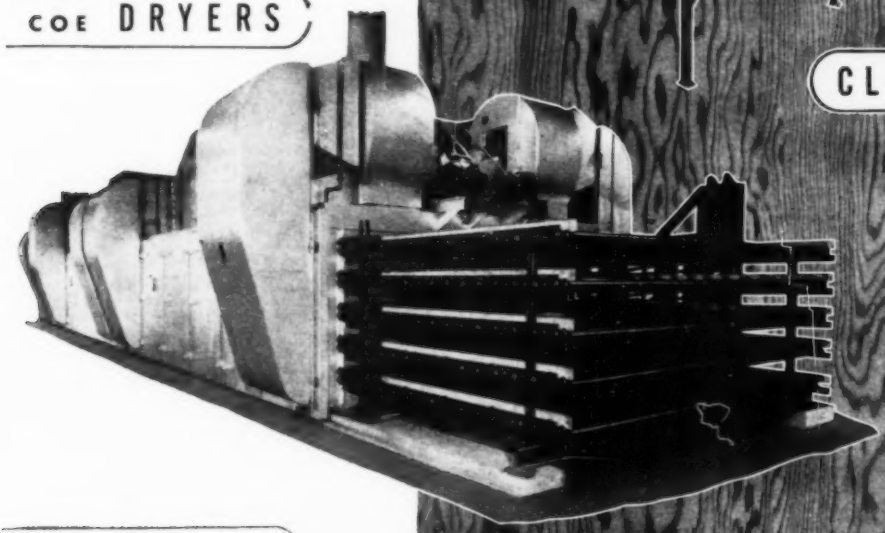
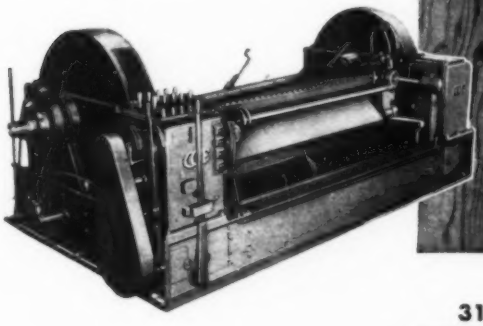
COE DRYERS

CLIPPERS



COE LATHES



• Whether your new machinery requirements concern a single lathe, clipper, dryer or a complete coordinated plant setup, our experienced engineers will gladly discuss your problems with you.

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316 Bank Street • Painesville, Ohio

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LUMBER, PLYWOOD, ETC.

Manufacturers of
Precision Kiln Dried
HARDWOOD DIMENSION
Finished and Semi-Finished
FURNITURE & INDUSTRIAL STOCK
Bed Rails, Glued Up Tops & Core Stock
Fordyce Wood Products, Inc.
Box 312W, Fordyce, Arkansas

HIGH QUALITY ROTARY CUT
GUM AND POPLAR VENEERS
Lengths up to 98"
GUM PLYWOOD
Cut to size Furniture Panels,
Small Stock Panels
CLARKE VENEERS AND PLYWOOD
Box 1482-W, Columbia 1, S. C.

WANTED
AIR CRAFT PLYWOOD
3/64"; 1/16"; or 5/64" plywood in any shape or size and any type wood. Used for 5/8" x 5" or 6" splines.
A. DRESCHER COMPANY
4602 N. 20th St.
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For Sale, cut, ready to ship,
Cleats 1½ & 1-13/16 x ¾—12" to 24" lengths, group 1.
1½ & 1-13/16 x ¾—10" to 18¾" lengths, group 1 and 3 mixed
All good quality dry stock, bundled. Wire best offer.
CHICAGO MILL & LUMBER CO.
33 S. Clark Street
Chicago 3, Ill.

PLANT FOR SALE

FOR SALE
Wholesale Yard and Planing Mill, Southern Illinois, served by four railroads, excellent location for milling in transit. Located on low lease railroad property. OPPORTUNITY FOR A YOUNG AGGRESSIVE LUMBERMAN. Owner retiring. Reply to WOOD & WOOD PRODUCTS, Box A 163

POSITION WANTED

AVAILABLE: Wood finishing Supervisor, Eng. background, many years experience in the org. fin. field. Familiar with modern production, research developments, cost reduction, for civilian or defense case goods.
Reply to Box A 168
WOOD & WOOD PRODUCTS

HELP WANTED

WANTED
General Manager to inaugurate, set up and operate a complete hardwood flooring mill. Excellent deal to the right man. Write giving complete history to Box A 165, WOOD, 175 Fifth Ave., New York 10, N. Y.

HELP WANTED CONT.

Wanted — experienced woodsman for general woods supervision and cruising. Write Box A 164, WOOD & WOOD PRODUCTS stating experience and references.

MANAGER—Millwork Plant
Must be experienced in millwork manufacturing, capable management, medium size plant located in East. Opportunity for partnership for right man, owner wishing to retire. State age, experience, complete information. Will hold confidential. Good opportunity for right man. This is a well-established business in good location.
Reply to Box A 166
WOOD & WOOD PRODUCTS

ENGINEER WANTED
MECHANICAL DESIGN ENGINEER, lumber mill experience, for work in our central consulting offices in Houston. Prefer design and layout experience in lumber mill sawing, sorting, handling, planing machinery, conveyors and equipment, log barking and chipping plants. Describe qualifications and training in writing.
H. E. BOVAY, JR.,
CONSULTING ENGINEERS
ESPERSON BUILDING
HOUSTON 2, TEXAS

HELP WANTED CONT.

TOY MANUFACTURER
SEEKS
Man as assistant to General Manager, with ability to eventually take over entire responsibility.
Applicants should have experience with cost estimating, wage incentive, cost control, inventory controls, production & quality controls, tooling, etc.
Age: Middle thirties.
Experience in Wood Toy Manufacturing preferred (not necessary.)
Salary commensurate with ability.
Send complete resume stating experience and past salaries; treated in confidence.
Reply to Box A 169
WOOD & WOOD PRODUCTS

MILL & CABINET SHOP OFFICE MAN with drafting experience to train for future executive position as Manager of small plant with excellent reputation for high class mill and cabinet work. Applicant must have had some experience and must be able to meet and work with Architects and Builders. If applying by mail give full information on background. Santa Barbara Mill & Lumber Company, Santa Barbara, Calif.

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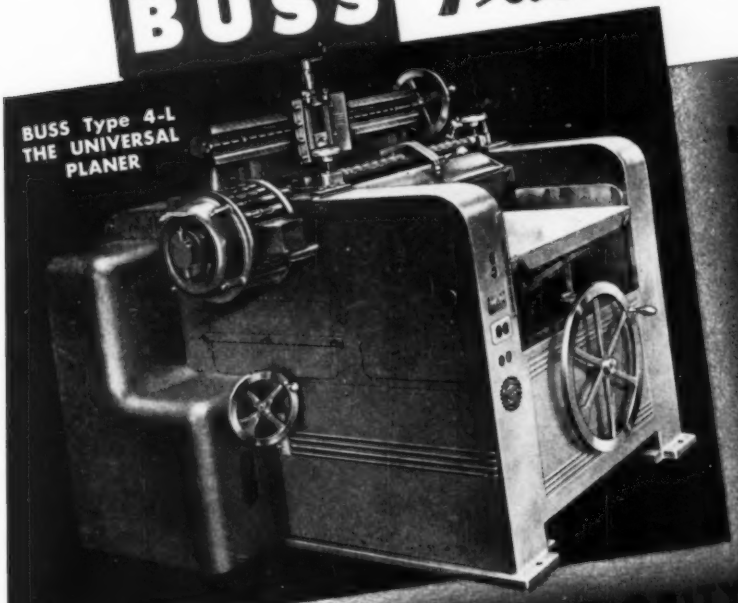
Every BUSS Planer Feature



DEVELOPED and STANDARDIZED IN BUSS SURFACERS HAS ADDED TO YOUR PERFORMANCE DEPENDABILITY PRODUCTION OF HIGH QUALITY SURFACING

POINTS OF SUPERIORITY:

1. Strong, compact, heavy — the weight is in the frame, side plates, and beds. **2.** Accessible — every working part is reached from the outside through light, convenient doors. **3.** Every working part is completely enclosed — the safest Surfacer built. **4.** Bearings — all anti-friction ball and roller. **5.** Completely motorized — motor on cutterhead arbor; motor grinder; motor feed; built-in reduction gear unit, Vari-feeds 23 to 68 feet per minute. **6.** Sectional Roll and Sectional Chipbreaker, independent yield ⅜", allows multiple feeding. **7.** Center Table and Pressure Bar chromium plated for long wear. **8.** Hand lever Micrometer Control for Pressure Bar — parallel changing of the bar in the thousandths as knives wear and material changes. **9.** Hand setting Micrometer Controlled Rolls – acts simultaneously to conform with the changing conditions of the under side of the material. **10.** Graduated Set Dial Inside of Handwheel for .001" Bed Setting. **11.** One-Shot Lubrication — oil force fed to all roll gears, gear teeth, roll boxes, every moving part; no part missed; no time out for oiling; maintains new machine accuracy. **12.** Push Button Controls. **13.** Buss Planers are tested out under a full pressure exhaust system with several truck loads of panel stock — insures the user of a properly adjusted and set surfacer, ready to give production work.

Write for new bulletin No. 61, just issued.

Get all the facts and you will agree that the 4-L Planer has no equal.

MACHINE SQUEALS?

Pressure Bar is probably dragging. In Buss planers proper adjustment can be made with a flick of the MICRO-CENTRAL Control.

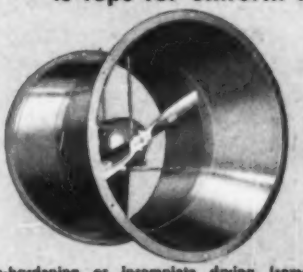
PRECISION BUSS PLANERS

BUSS
SINCE 1862
MACHINE WORKS

244 EIGHTH ST.,
HOLLAND, MICHIGAN

Boost your drying capacity with HARTZELL dry-kiln equipment

. . . and this *reversible* fan is tops for uniform drying



Case-hardening or incomplete drying (sometimes both in the same kiln) seem to occur in many kilns. So we did what "couldn't be done" — designed this fan, which moves air efficiently in either direction. It can be manually reversed, or equipped to reverse automatically at pre-determined intervals. See what that means? Stops the tendency to case-harden at one point in a kiln, dry incompletely at another. Send for facts.

If you're troubled by cramped dry-kiln capacity, remember this: The production rate of many present-day kilns can be increased by considerable percentages — sometimes doubled — by the proper installation of better air-moving and air-heating equipment. Even some brand-new kilns could have been equipped to produce ten, twenty—even thirty —percent more processed lumber.

How do we know? We've done it! In our own kilns, which have been operating since the turn of the century, and in the field.

Hartzell fans and heater cores are built to work as an effective team; to move air positively and economically, and to transmit heat at a maximum rate. Hartzell installation diagrams show how to install them properly.

Few kilns are precisely alike. Hartzell combines elements, specifies materials and advises installation to get the maximum from the one kiln in question. Send us data on your disappointing kilns. We'll suggest how to improve, without obligation.

CLIP AND MAIL THIS COUPON NOW FOR INFORMATION

HARTZELL PROPELLER FAN CO.

PROPELLER-TYPE FANS AND BLOWERS—ROOF VENTILATORS—UNIT HEATERS • ENGINEERING OFFICES IN PRINCIPAL CITIES